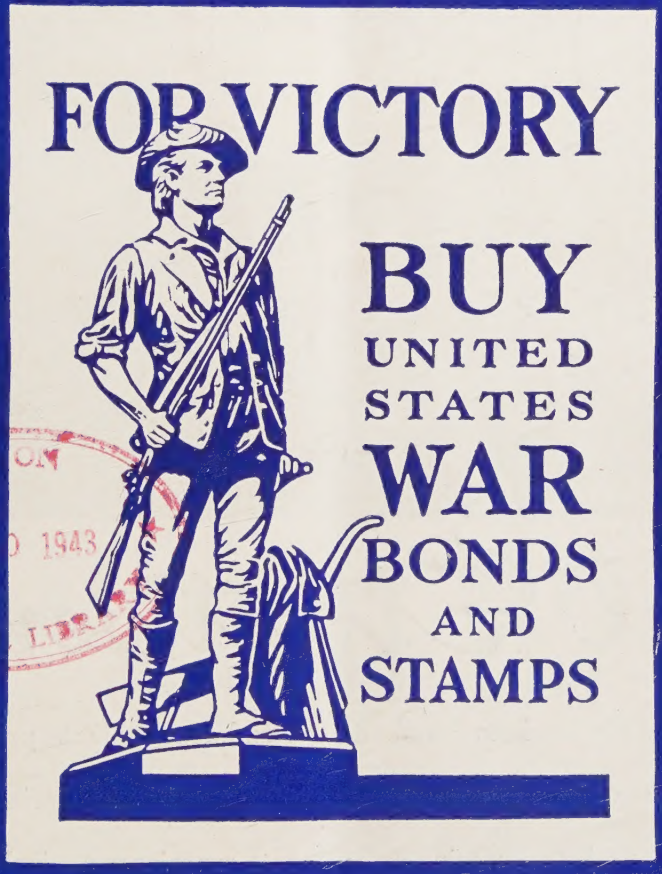
MEDICAL RECORD



February 1943

Vol. 156, No. 2

Clinical Effectiveness

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The facts thus adduced are further substantiated by the thousands of physicians who have employed Ortho-Gynol in their office practice and by the many clinics which are now dispensing Ortho-Gynol to their patients.

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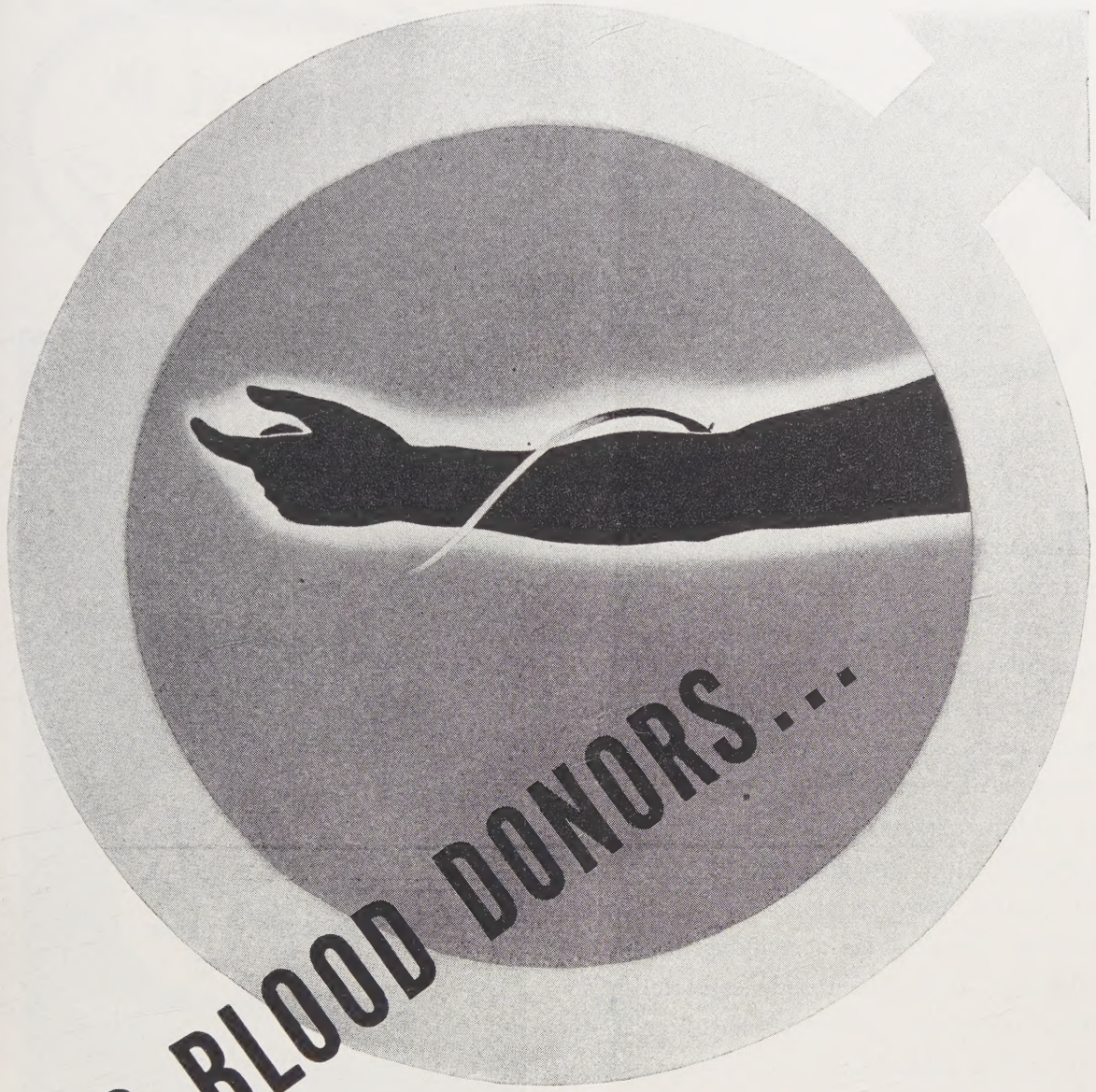

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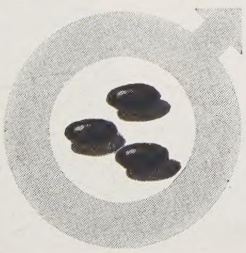
Hematinic PLASTULES provide iron in the *ferrous* state quickly available for conversion into hemoglobin. They are easy to take and well tolerated. Hematinic PLASTULES Plain contain dried ferrous sulphate U.S.P.X. 5 gr. and yeast concentrate .75 gr., supplied in bottles of 50, 100 and 1000. Also available with Liver Concentrate.



Ferrous Iron Sealed from the Air but not from the Patient

† Fowler and Barer: "Rate of Hemoglobin Regeneration in Blood Donors." J.A.M.A., 118:421:1942.
* Reg. U. S. Pat. Off.

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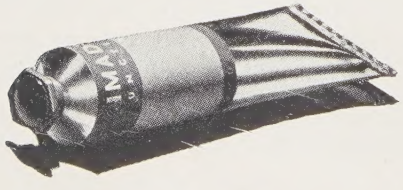

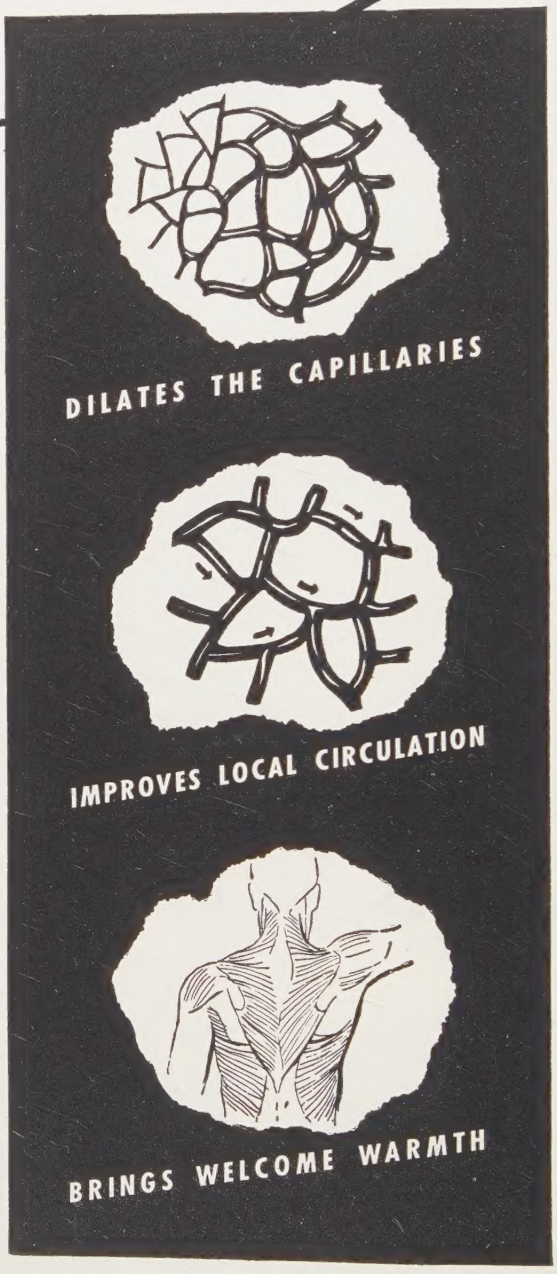

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FEBRUARY 1943

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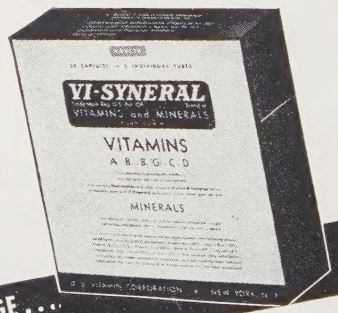

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contain Merodicein (H. W. & D. Brand of Diiodooxymercuriresorcinsulfonphthalein-sodium), 1/8 grain, and Saligenin (Orthohydroxybenzylalcohol, H. W. & D.), 1 grain. They dissolve slowly, permitting prolonged medication with the two active ingredients.

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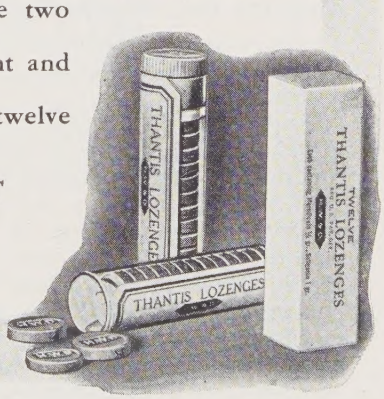

Open Forum

Rationing Medical Service

Medical services for the duration of the war and for several years thereafter will be "rationed", according to Dr. George Baehr, Chief of the Medical Division, Office of Civilian Defense.

With thousands of doctors and nurses already in the armed services and more leaving every day, Dr. Baehr said, the "luxury" medical attention to which Americans have been accustomed will be eliminated. Some of the "luxuries," he said, are: the full-time attention in a hospital of one or two private nurses, if the nature of the illness is such that the nurse can attend other patients in nearby rooms; going to a hospital just for a "rest" or for clinical diagnosis that could be made by visits to doctors' offices; and calling a doctor to the home when the patient could be taken safely to the doctor's office or could be treated by someone in the house following telephone instructions.

Dr. Baehr predicted as his personal opinion that the need for sensible rationing of medical services would continue for several years after the war. "It appears now," he said, "that during the immediate reconstruction period following the war occupation of many countries by the armed forces of the United Nations will be necessary to keep peace and order. Many of the countries we will have to occupy have never had adequate sanitary or medical conditions. In others the best doctors will have been killed or used up by the enemy. In all these places, American doctors, nurses, and laboratory workers must go along to protect the health of our forces. This means providing enough medical service that the health conditions in those countries as a whole can be controlled.

In spite of the war drain on American doctors and nurses, Dr. Baehr said, adequate health and sanitation facilities will be maintained in this country. Careful watch is being kept that too many doctors are not taken from any community, and thousands of Civilian Defense workers are being trained to work as nurse's aides, hospital assistants, and in other capacities.

Although there are more than seventy-five thousand nurse's aides now in service or in process of training, he said, there is need for two or three times that many volunteer workers. Mobilization of such volunteers was urged as one of the most effective jobs which could be done by State and local Defense Councils.

Message the Health Department Might Send

Our country at war requires every person to be on the fighting front or doing his or her share at the industrial front.

Employer and employee have a joint responsibility. Certain prejudices have prevented the employment or continuation at employment of persons without any signs of infectiousness or communicability of syphilis, yet with a positive blood test showing past disease. Health departments join with high government public health officials in overcoming this prejudice. There is no danger to fellow workers in employing or continuing to employ a person who has syphilis, provided that person is under competent medical treatment, and has no open sores. Modern treatment rapidly reduces any possibility of transfer of infection. A person with only a positive blood test is not infectious in the routine of employment. There should be no additional barriers placed on such an employable person because of the discovery of a positive blood test on routine examination for employment at any time. There is no excuse in our present emergency for discharging from employment or refusing to hire in any industry a man or woman with a positive blood test, and without a sore or any outward sign of the disease in a communicable form.

Physicians engaged in the work of examining prospective employees for large corporations have for a number of years received the cooperation of the health departments in enlightening employers, and removing any barriers to hiring or continuing employment of personnel falling under the group given above. If factory, shop or office has not yet joined with these modern up to the minute employers, this matter should be called to the attention of the personnel director. A person without clinical signs should not be refused employment or released because of a positive blood test! The person who suspects or knows that he has become infected with a disease, such as syphilis or gonorrhea, should visit a physician at once. A complete physical examination, including a blood test, is in order. Those not infected with any of the infectious venereal diseases should remember that these diseases are avoidable; they are also preventable. Ask your health department to present free lectures and moving pictures in shop, factory or office on health topics including venereal diseases. Apparatus and operators are provided.

Every day that a person does not work because of illness, every person denied work because of unjustified prejudices regarding positive blood tests, means another man day of labor lost to the nation fighting a war!

Feeding the Land

In order to produce food good in quality and quantity, in many places the land itself must be fed. In some countries the land has been worn out with little or no effort to recuperate it. Good food cannot be got out of soil depleted of its essential properties. A difference of opinion exists as to the comparative value of farmyard manure and artificial fertilizers to bring back to the soil at least some of its former fertility. It is a difficult problem to solve. It is stated confidently by some that the supposed virtues of farmyard manure are largely mythical and that, at any rate, over a short term of years it can be safely replaced by artificial fertilizers. Others contend that farmyard manure and other natural fertilizers are better than any artificial method. The advocates of artificial aids to poverty stricken land contend that a war is going on in all parts of the world and it is a wise policy to produce food as quickly as possible. This is a plausible argument, as stimulation of agricultural production is certainly required. It appears to be known that the responses to a given dressing of any one fertilizer component varies greatly with crop, soil, season, previous manuring, and so on. Therefore the best amount of each component to give the best return is variable. Knowledge of this kind can be gained only by long and extensive research. Good wholesome food, which cannot be obtained from poor soil, is, perhaps, one of the greatest questions relating to health, and to discuss starving the land which leads to starving the people is not out of place in a medical journal.

In RUN-DOWN states

THERE ARE many sound reasons why OVOFERRIN is the preferred hematinic and tonic in run-down conditions. But basically, these stem from the fact that it is a unique colloidal iron-protein, and it has many noteworthy therapeutic advantages over the iron salts (sulphates, citrates, etc.). The ionizable salts are split up in the alimentary tract with the release of ions likely to be astringent and irritating. In the intestines the iron ion precipitates may dehydrate and constipate, are less efficiently assimilable.

OVOFERRIN'S *colloidal* iron-protein on the other hand does not release *irritating* ions in the stomach. It arrives in the intestine as a fully hydrated colloidal oxide, a logical, nutritional form which is readily assimilable and can not constipate.

In the run-down business man, school child or housewife, OVOFERRIN produces prompt nutritional improvement, appetite stimulation and a better blood picture. Its palatability, its freedom from odor and from staining properties assure patient cooperation. But these qualities are not the result of sweetening, masking, or coating. They are inherent in OVOFERRIN'S colloidal form. Dosage—1 tablespoonful in a little milk or water at meals and bedtime.

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COLLOIDAL IRON-PROTEIN BLOOD-BUILDER
In Secondary Anemia, Convalescence, Pregnancy, "The Pale Child," and Run Down States

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Wine in Diabetes Mellitus?

(Read this free booklet)

AN authoritative summary, "The Therapeutic Uses of Wine," has been prepared in monograph form to answer such questions as this. In it, qualified and competent medical authorities review the pertinent literature of present-day medicine. You are invited to write for this monograph.

The contents include sections on wine as a food and on the actions of wine on the gastro-intestinal system, the cardio-vascular system, the genito-urinary system, the nervous system and the muscles, and the respiratory system. The uses of wine in diabetes mellitus, in acute infectious diseases and in treatment of the aged and convalescent are also discussed. The value of wine as a vehicle for medication is dealt with, and an important section on the contraindications to the use of wine is included. An extensive bibliography is presented for those who may wish to pursue the subject further.

This review results from a study supported by the Wine Advisory Board, an agricultural industry administrative agency established under the California Marketing Act, and has been sponsored by the Society of Medical Friends of Wine.

Members of the medical profession are invited to write for this monograph. Requests should be made to the Wine Advisory Board, 85 Second Street, San Francisco.

Our Children Will All Be Fed

T. SWANN HARDING
Falls Church, Va.

For many years we wasted money trying to educate underfed children who were too malnourished to progress rapidly in school. In the famous year of prosperity, 1929, Dr. Victor E. Levine, of Creighton University, Omaha, reported that "a decade ago" from ten to twenty percent of all children in the United States had defective teeth, while twenty percent were suffering directly from malnutrition. That was four million underfed children, and the year was 1918.

This doctor also said that right then, in June 1929, at the very height of prosperity, one-third of Chicago school children had nervous disorders, commonly associated with malnutrition, and two-thirds of New York City school children were physically below par. He estimated that more than half of all the school children in the United States were undernourished right then. We spent a billion dollars a year then to educate children and only sixty-five cents per child per year on their health. We did little or nothing governmentally to see that they were adequately fed.

Our schools were the best in the world, architecturally and intrinsically. More taxes were levied to support them than for any other one purpose. Their staffs were well trained and children were compelled to attend. But millions of undernourished children attended these schools. There a decade ago, ten million strong, the great army of the underprivileged was hammering at the very gates of the citadel of our civilization.

The daily paper has to put in some news that isn't fit to print. Not long ago it told the tale of a family of ten which occupied an Ozark cabin in Missouri. The Red Cross had paid union dues for the father and one youth so they could work at a nearby Army camp. But the youth couldn't stand the heavy work. He collapsed from malnutrition.

It developed that the family had hoed strawberries, picked fruit, and done odd jobs. The youth, aware there was insufficient food, refused to sit at the table with his parents, brothers, and sisters. He starved himself, developed pellagra, and died. That news isn't fit to print because the United States is rich and intelligent enough to provide an adequate diet for every citizen. Yet a youth starved to death in 1941.

No doubt others starved to death also, though the death certificates may have cited some other more respectable cause. Others still are chronically underfed. Subclinical malnutrition is very common. Conservative doctors insist that undernourishment is rare because they seldom see full-fledged cases of deficiency disease with all the classic symptoms. But skilled clinicians have developed methods of diagnosing what was previously subclinical malnutrition, the hidden hunger that lowers efficiency, vitality, learning power, alertness, and resistance to infection.

About 1930 the ordinary family should have had an income of from $1,600 to $1,800 a year to maintain decent standards of living and of health. But of twelve industries employing the largest number of workers in 1929 minimum wage levels reached or exceeded $1,700 in only three. In two industries the figure was below $800. It was concluded then, in 1929, that "the majority of families in this country are living close to the

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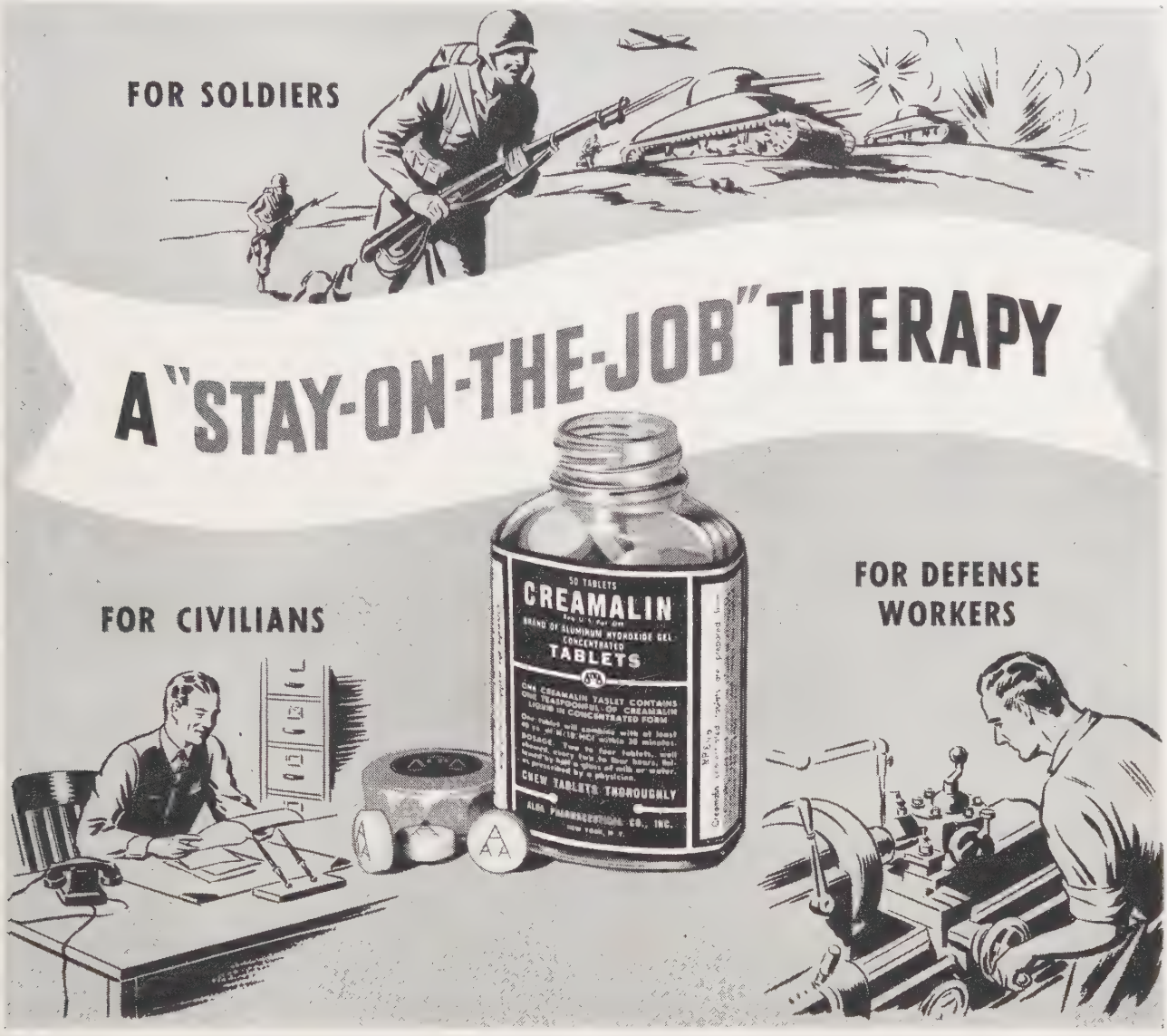
FOR SOLDIERS

A "STAY-ON-THE-JOB" THERAPY

FOR CIVILIANS

FOR DEFENSE WORKERS



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CONVENIENT *may be taken* any time, any place.

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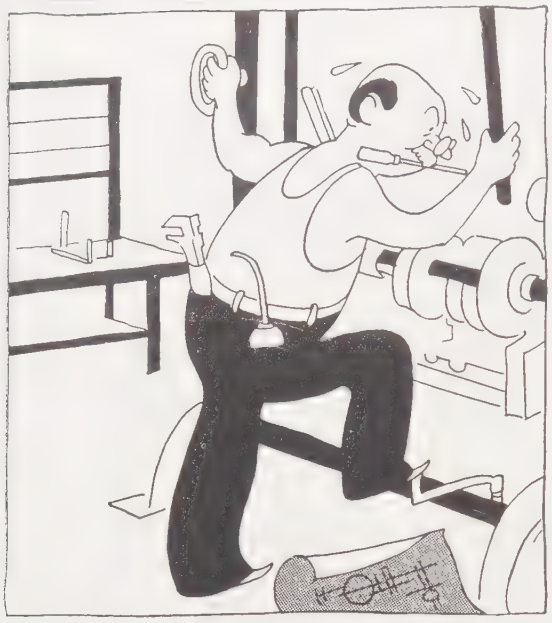

DAY SHIFT...NIGHT SHIFT...
SWING SHIFT...

they *all* need

ENDOGLOBIN

WITH VITAMIN B_1

A GOOD GENERAL TONIC

IT has been authoritatively stated that, today, there are millions of nutritionally deficient workers in our production army, men and women who need *"a good general tonic."*

Endoglobin is a palatable and skillfully blended combination of iron, as iron peptonate, liver substance, fresh beef blood (government inspected) and glycerophosphates, in a non-alcoholic, sugar-free medium. The beef blood is so treated as to permit easy assimilation of the cells. Vitamin B_1 has been added for its known therapeutic value. It's safe for the whole family, from baby to Gramps, effective in teaspoonful doses—and economical to the last drop.

Prescribe ENDOGLOBIN when *"a good general tonic"* is indicated.

HOW SUPPLIED—8 oz. and 16 oz. bottles.

ENDO PRODUCTS, INC.
RICHMOND HILL NEW YORK

margin of economic want". Yet many families fell even below this, right while "prosperity" reigned.

In 1934, studies by Dr. J. E. Maller of Teachers College, Columbia University, showed that many retarded children in New York City schools failed to do their work in a satisfactory manner because they were underfed. In some schools more than seventy percent of the pupils were found to be undernourished, and the retardation classes were abnormally large in such schools. Obviously this spells waste of school funds.

In 1939, experts reported that during the past five years at least ten investigations had demonstrated the beneficial effects of supplementing the diets of children, the obvious inference being that their normal diets were inadequate. It was then estimated that 22.3 percent of all American children were suffering from malnutrition, while one-third of those in New York City were poorly nourished, and pellagra, an easily preventable disease, took four thousand lives a year.

Many signs of nutritional deficiency that are now recognizable by scientific means then escaped detection. But the condition was often so overt as to be recognized by laymen. Underfeeding students has been a popular indoor pastime since the days of Oliver Twist and doubtless earlier. Charles Lamb sharply criticized the diet of Christ's Hospital School, but only around 1918 was the ration of the students improved by substituting milk from the institution's own cows for the beer allowance, and the addition of whole-grain bread, sufficient cheese, and increased quantities of butter, meat, eggs, and vegetables.

In 1923 the health of the children was compared with what it had been earlier. They showed increased growth, decreased dental caries, fewer bone fractures, and far less rheumatism. It began to be realized that health and child development could largely be controlled through food. It was also demonstrated that boys in a school near London, where they had supposedly received the best of care, markedly improved in health and growth when a pint of milk daily was added to their diets.

In 1928, Sir John Orr studied fourteen hundred children attending elementary school in six Scottish industrial cities and in Belfast. The addition to their diets of a daily portion of from three-fourths to one pint or a pint and a quarter of milk, resulted in greatly increased height and weight as compared with other children who got the same number of calories in the form of sweet crackers. Thereupon the Scottish Board of Health made a grand-scale study of twenty thousand youngsters with the same result.

One girl triumphantly declared: "I can now fight my brother!" Sir John Orr has stated that he found it easy to pick out the children who got the milk because they were more active and alert and held themselves in better posture. He has also told about a group of drab, carelessly dressed, irritable women who became useful, neat, cooperative persons when properly fed. These studies paved the way for the British Milk-in-Schools Act of 1934 which provided half a pint of milk daily for any child in the United Kingdom at a cost of one penny.

The studies have been confirmed in Italy, in Japan, and in the United States. The famous Oslo breakfast, often substituted for inferior meals fed to children, consisted of two whole-wheat scones, whole-wheat or whole-rye bread ad lib, a piece of cheese, a third of a

(Continued on page 76)

JIMMY DIDN'T NEED A PSYCHIATRIST

Jimmy's mother feared he might become a "problem child" because he was apt to be dull, cranky and moody. But it didn't take the physician long to discover that the source of the trouble was strictly physiological—constipation in fact.

Relieving the costiveness which so frequently occurs in children may at times present a vexing problem which, however, the use of Loraga will solve in many cases. A fine mineral oil emulsion, Loraga softens and lubricates the intestinal contents, facilitating elimination without strain. It contains no laxative ingredients, and its palatability, free from oiliness, renders it acceptable to all tastes.

Send your request to the Department of Professional Service for a trial supply of Loraga.

LORAGA is available in convenient 16 ounce bottles.

WILLIAM R. WARNER & CO., INC., 113 WEST 18th ST., NEW YORK CITY

pint of milk, margarine reinforced with vitamins A and D, and half an apple, with an orange or raw carrots as alternatives. A child needs a quart of milk, an egg, several ounces of leafy green or yellow vegetables, and a teaspoonful of cod-liver oil daily to get sufficient vitamin A.

Thus the effort to educate underfed youngsters was recognized as wasteful and extravagant. Efforts began to be made also to provide nutritious hot lunches for school children. Gradually this came to be regarded as an integral part of a sound educational program.

The symptoms of subclinical malnutrition are many and varied. Even in 1929 certain physicians observed that underfed children had poorer health, marked fatigue and nervous restlessness, and only about one-third the efficiency of full-fed youngsters. Better food gave not only increased weight and growth but improved functional capacity generally. Bad emotional factors, often resulting in misbehavior and failure to "pass" were eliminated.

Among the common symptoms of malnutrition are not only organic troubles like indigestion, weakness, acute fatigue, nausea, intestinal disturbances, headache, palpitation, insomnia, and poor appetite, but also extreme nervousness, irritability, quarrelsomeness, fear, inefficiency at work, inattention to details, confusion of thought, poor memory, and such lack of manual dexterity as to impair competence seriously. Persons suffering from malnutrition even in less acute form may therefore be quite unable to study or work.

The present extent of underfeeding is considerable. About half our population has to get along on an expenditure of ten to fifteen cents per person per meal. Only about a fourth of our people are really well fed. If all were fed adequate diets we should require twenty percent more milk, fifteen percent more butter, seventy percent more tomatoes, citrus fruits, and other sources of vitamin C, one hundred percent more leafy green and yellow vegetables, and thirty-five percent more eggs. Even this would merely give us all good, not optimal, diets.

The Bureau of Home Economics, in May 1941, issued a publication on planning low-cost, moderate-cost, and liberal diets. It is significant that the most liberal diet advised would cost around fourteen dollars weekly for a family of two adults and two children, or about seventeen cents per person per meal. Yet we had until recently twenty million people trying to get along on five cents per person per meal.

The lowest cost diet prescribed would cost from $6.50 to $9 for the family of four per week. It is on some such diet as this that most of our people have to subsist and it takes the greatest care to select food so as to render it nutritionally adequate. This means from eight to eleven cents per person per meal for food while, also at retail prices, the United States Army allows twenty-one cents per soldier per meal for food. You can make your own comparisons, remembering that the poorest families still uniformly have the greatest number of children.

It is for this reason that the Surplus Marketing Administration's school-lunch program has such importance. This is not only a surplus-removal device, aimed to aid farmers by buying their surpluses and preventing them from glutting the market and reducing prices

(*Continued on page 78*)

IN DISORDERS OF GASTRIC FUNCTION

Gastron

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GASTRON, a highly potent stable concentrate of the entire gastric mucosa including the pyloric, is an effective gastric substitution therapy in conditions of digestive functional failure. It contains the various complex ingredients of the gastric secretion in their normal association.

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for farm products abnormally. It also makes use of trained relief labor and it serves the food in the form of nutritionally balanced meals to the very undernourished school children who most need them. In short it enables us to utilize wealth for constructive purposes instead of throwing it away.

In 1936 only about twenty-seven percent of our families had good diets. The average consumption of protective foods in families with less than $1,000 annual income was only half that in families with more than $2,500. Urban families with annual incomes under $1,000 had the most children and the least adequate diets. About seventy percent of all the children were, in fact, in families with annual incomes of less than $1,500. Children also made up thirty-seven percent of all persons in relief families. The school-lunch program was a direct attack on child semi-starvation making use of the existing institutional framework, the traditionally praised public school.

The idea is not new by any means. Victor Hugo started such feeding of school children, at his own expense, in the island of Guernsey in 1865. The school adjoined his home there. During the Boer War when Britain found two men out of five unfit to be soldiers school lunches began to be served in schools; that was 1902. Parliament enacted legislation on the subject in 1906. Feeding school children started as far back as 1849 in France and received official recognition by the Ministry of Public Education in 1867.

Children have had the benefit of private charity in this matter for some time, even in the backward United States. But under the school-lunch program more than two million undernourished school children have utilized agricultural surpluses in the form of school lunches and more than 65,000 trained relief workers, previously idle, have prepared and served the meals. Here is a three-pronged attack upon unmarketable food surpluses, unemployment, and malnutrition.

That the program pays for itself is self-evident. Farmer income is increased which in the long run benefits city industry. The schools are able to educate well-fed children faster than they can underfed ones, and thus effect savings. The next generation does not grow up physically and mentally handicapped by reason of malnutrition during childhood. The combined savings effected from their greater efficiency and lower expenses for medical care will be enormous.

In September 1941 the Department of Agriculture launched a Food-For-Freedom Program designed to help ourselves to better nutrition while we at the same time give aid to Britain in terms of food. As a result of this program we were to send to Britain in 1942 five billion pounds of milk (or the equivalent), half a billion dozen eggs, one and a half billion pounds of pork and lard, and large quantities of canned poultry, fresh fruits, and canned vegetables. At the same time the production of certain other crops will be increased while that of crops of which we have surpluses will be curtailed.

This feat has been accomplished by using the agricultural adjustment machinery developed in the Department since 1933. This machine was originally designed to produce abundance, to curtail the production of crops of which we had large carry-overs but to increase production of crops for which there was greater need. An integral part of the plan was the ever-normal granary by means of which we carried over normal surpluses of years of plenty until needed.

(*Continued on page* 84)

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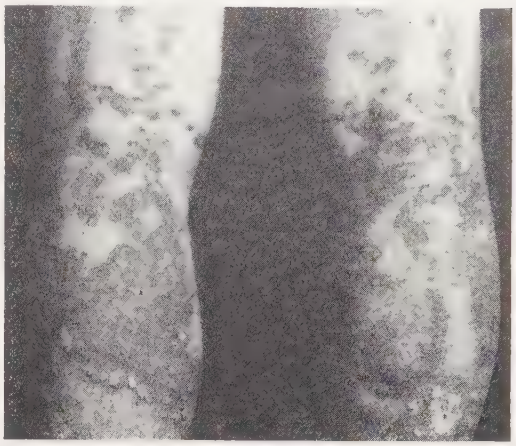

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Our Contributors

Max Einhorn, M.D., New York, N. Y., is one of the leading gastroenterologists of America; his work is also well known in Europe. He has written many important books on diseases of the stomach and the intestines, and has invented a number of instruments which are used in the practice of gastroenterology.

* * *

Henry G. Hadley, M.D., LL.B., Sc.D., F.A.C.C.P., Washington, D. C., received his degree in medicine from George Washington University in 1917. He is a member of the Courtesy Staff of George Washington University, Georgetown University, Garfield, Emergency, Children's, Casualty and Sibley Hospitals. He specializes in internal medicine and diagnosis. His hobbies include laboratory research, especially in tuberculosis and cancer.

* * *

Bernard J. Ficarra, M.D., D.N.D., Brooklyn, N. Y., received his medical degree from Georgetown University School of Medicine, Washington, D. C., in 1939, and since that time has been at Kings County Hospital, Brooklyn, N. Y. He served a two-year surgical internship, and a residency in pathology, and at present he is resident surgeon at the institution. In 1940, he was commissioned a Captain in the Medical Corps and was on active duty until September 1941, when he was honorably discharged from the Army for physical disability. His hobby is writing, his favorite topic for which is medical history.

Herman Goodman, M.D., New York, N. Y., was graduated from the College of Physicians and Surgeons, Columbia University, in 1917. He served with the U. S. Army during the World War. His interests have ranged from dermatological diagnosis, physiotherapy, particularly ultraviolet radiation in skin diseases, to the pharmacy of prescription writing in cutaneous physiology and pathology. He is a dermatologist and has contributed many articles to this and other journals on topics relating to his specialty.

* * *

The Honourable William Renwick Riddell, LL.D., D.C.L., Toronto, Canada, is the King's Senior Puisne Justice in the Court of Appeal for Toronto. He was a student of medicine for four years in the English fashion. He gave up medicine for a professorship in mathematics and after a few years, abandoned that for the study of law. He and Sir William Osler were great friends and Osler offered him an honorary M.D. from Oxford. He is an Honorary Fellow of the Academy of Medicine, Toronto, and a Fellow of the Royal Historical Society.

* * *

Frederic Damrau, M.D., New York, N. Y., is a graduate of Long Island College Hospital where he received the Corydon L. Ford prize for the best dissection and later (in 1916) taught anatomy. During the World War he served as an officer in the Medical Corps from 1917 to 1921. He was formerly assistant attending physician on the neurological service at King's County Hospital and the out-patient clinic of Long Island College Hospital. He is now engaged in medical research on foods and drugs. His hobbies are tennis and contract.

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* With men in the Army, the Navy, the Marine Corps, and the Coast Guard, the favorite cigarette is Camel. (Based on actual sales records in Post Exchanges and Canteens.)

_the favorite brand in the Armed Forces*

Our Children Will All Be Fed

(Continued from page 78)

Thus when it became necessary for us to produce more pork for Britain in 1942 we had right at hand bins and elevators full of feed grain to be released to farmers for their hogs in 1941. While it is true we had produced an all-time high of 111 billion pounds of milk in 1940 and shall top that with 117 billion in 1941, we have the grain at hand to stoke up our dairy cows so as to make them produce the 1942 requirement of 125 billion pounds of milk. The agricultural adjustment machine has never been designed to produce scarcity. It adjusts production while aiming at abundance, meanwhile conserving soil riches.

Now five billion pounds of milk would fill a tube half a foot in diameter circling the equator three times. Just imagine how much space 125 billion pounds would fill. And yet if we all had a best-adapted diet, if we each consumed 295 quarts of milk yearly (or the equivalent) instead of the mere 168 quarts we do consume, we should need 140 billion pounds of milk right here in the United States for our own use. But you will note we are providing three billion pounds more for our own people, as well as five billion for Britain, in 1942.

What does that mean? That means that we are increasing our capacity to produce the crops needed by Great Britain, not only enough to supply ten million of her people with animal protein foods, but also enough to increase the nutritional well-being of our own citizens. We shall also lay aside reserves or stock piles of food which we expect in time to use as an instrument of policy when starving Europe quits fighting. In fact the very knowledge that this food exists may act to end fighting sooner than otherwise.

By the time fighting stops, however, we should have our farm plant improved to the point where it can supply all the agricultural commodities that all of our people need all of the time. There is no danger inherent in a surplus of good food, so long as we have the food-stamp, cheap milk, and school-lunch plans available to drain it off the market until such time as the private food industry finds it can actually make money, if it tries efficiently, by feeding low-income Americans.

Today the farmer gets a very small share of the consumer dollar spent for food—perhaps a nickel out of the quarter which will buy the cotton that goes to make a man's shirt—or perhaps sixty cents a bushel for wheat which may retail at twenty dollars a bushel after being processed, packaged, and presented to the consumer as a trick cereal. For many long years the farmer has provided us with agricultural commodities at a discount while monopoly and inefficiency in food processing and distribution have made consumers pay high prices.

Private industry can do better of course. Private utilities thus found out that they could provide electric power more cheaply and also to scattered rural communities, at a profit too, after the Rural Electrification Administration and the Tennessee Valley Authority showed how this could be done. Private physicians found out that they could group together and give scattered rural families a good grade of medical care for $25 or $30 per year, after the Farm Security Administration had shown them how this could be done.

So also the private industries which process, package, and distribute food can learn how to provide food for low-income families at a profit. Meanwhile the Government will have the farm-plant equipment to guarantee every American citizen his birthright of an adequate diet, and will see to it that he gets it. There is simply no sense to anyone going undernourished in this rich country of ours. Our farm plans since 1933 have even prudently preserved the soil and water resources that make increased production readily possible.

In November 1941 the Department of Agriculture announced a post-war program to prevent depression. It was drafted by a national committee and was devised to utilize our manpower and our resources for the benefit of the entire American people. It is a three-point program. The first point concerns the building up and conservation of our national resources—additional work in reforestation, soil conservation, flood control, range improvement, and development of water facilities.

The second point concerns the provision of rural people with improved housing, medical care, electric-power facilities, education, libraries, and markets. The third deals with the direct conservation of our human resources. It is concerned with industrial decentralization, the maintenance of agricultural and industrial production at full capacity with full employment, and the use of the surplus-disposal plans to act as a bridge to a better tomorrow.

Under this post-war plan as now conceived we shall take for granted the scientific and technical knowledge we have. We shall run our agricultural and industrial plants to full capacity, learning how to utilize the real wealth produced for the public welfare. Thus we shall effect full employment and produce high levels of national income. For a while it will be necessary to increase the purchasing power of certain low-income and maladjusted groups by using the food-stamp, school-lunch, and cheap-milk plans, and by making some gratis distribution of surplus foods.

But as a new sort of prosperity dawns, based upon a sure foundation of productive capacity, most of these people can pay their own way. Food processors, packagers, and distributors will find out how to make profits by serving low-income groups. They will do this in part by processing and packaging edible, nutritious foods of lower than fancy quality under truthful labels, and distributing them with more efficiency and less need for tremendous write-ups. It will be discovered also that many relatively nonperishable foods can be sold in bulk, under sanitary conditions, without the cat sleeping in them, the coal oil can leaking over them, or store loafers spitting into them.

Private industry can and will learn how to process, package, and distribute food at relatively low prices. It will engage in campaigns of honest, educational advertising, of what is commonly called an institutional character, which will fully inform consumers and at the same time increase sales. These things can be done and under the leadership of the Department of Agriculture they will be done. Our children shall be fed.

We need not have a depression after this war if we plan intelligently to prevent it. We can have instead a well-fed, well-clothed, well-housed people, all of whom are provided with such medical care and educational facilities as they require. That is the basic heritage from now on of every American citizen.

At that time there will be no underfed school children, and it is shameful indeed that it took us so long to decide that we could and would adequately feed the rulers of the world of tomorrow. Even while at war we can produce an abundance of food for ourselves and sufficient to supply the needs of our Allies. After the war we can see to it that all Americans are fully fed.

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MEDICAL RECORD

PUBLISHED MONTHLY BY

THE MEDICAL JOURNAL AND RECORD PUBLISHING CO., INC

Vol. 156 No. 2 FEBRUARY 1943 WHOLE No. 2721

THE VALUE OF SOME MEDICAMENTS IN GASTROENTEROLOGY

As Evidenced by the Digestive Test Capsule (or Bead Test)

MAX EINHORN

New York, N. Y.

After one of my lectures at Cornell Medical College, a student asked me if I could give him a prescription for the cure of dyspepsia. This, he said would greatly help him in his future career. My answer was: "Before starting treatment, we must always try and make a diagnosis of the ailment. Based upon this we decide the proper medication."

For you, as practitioners of medicine, it is our aim to make your task as easy as possible. With this purpose in view I shall discuss the digestive test capsule, which will give you an inkling of the proper working (or failure) of the gastrointestinal tract. This will help you to establish a mode of procedure in handling the case in question, with regard to diet and medication.

The advances in gastroenterology commenced when more knowledge concerning the digestive apparatus was given by William Beaumont (in America, 1825), Adolf Kussmaul (in Germany, 1865), Leube, Ewald, Riegel, Boas (1884), Reichmann (in Russia and Poland, 1888), Georges Hayem, Mathieu, Debove (in France). Chemical studies, in particular of the digestive juices of stomach, intestine, pancreas, etc., have been made by the above named authors in conjunction with numerous others, namely, Schmidt, Strassburger, von Noorden, Nothnagel, etc. Radium and the x ray have been introduced by Curie and Roentgen and have been found helpful in the diagnosis and treatment of the digestive apparatus.

Cannon, Forsell, Pfahler, L. G. Cole, W. H. Stewart, and others have helped to build up x ray methods, while bacteriological studies have been undertaken by J. Kaufman, W. Coleman, Bargen, Felsen and others. Chemical studies regarding the pancreas have been made by Hemmeter, Opie, Ivy and others.

In the short time allotted to me I cannot mention all the authors who deserve the credit we give them for their helpful work in erecting the structure of gastroenterology.

I turn now to the topic of my address to help the practitioner in making a diagnosis in dyspeptic conditions and selecting some remedies for their management.

Test Diet

Schmidt and Strassburger inaugurated chemical investigations of the feces, after certain definite diets. Schmidt's test diet consists of 1500 cc. milk, 2 eggs, 100 gm. of biscuit, 80 gm. of oatmeal, 5 gm. of butter, 125 gm. of beef and 190 gm. of potatoes per day.

Divided for the different meals it is arranged as follows:

BREAKFAST: One pint of milk with tea or cocoa, one roll, one soft boiled egg, one plate of oatmeal or porridge.

DINNER: Beef, well chopped and slightly roasted; potato, milk.

SUPPER: One pint of milk or soup, one roll with butter, one or two eggs, soft boiled or scrambled; a little wine or weak coffee may be added.

Before starting the test diet a large dish of blueberries is eaten, in order to mark the beginning of the test meal, which is recognized by the lack of blue coloration. The stool is then collected for the whole day and chemical investigations made in the laboratory.

It requires chemical laboratory work, which can be done in good, efficient hospitals, but seldom in private practice. Besides, it is not so easy for the patient, for he has to undergo examinations with this diet for several days. Generally the patient is first examined by the usual stomach tube with regard to the condition of the gastric juice. Sometimes we meet patients who object to the introduction of the tube into the stomach.

Development of Digestive Test Capsule

In order to obviate all these difficulties, we can make use of the digestive test capsule which I shall take pleasure in demonstrating to you. Before doing so, however, I will give you a few points with regard to the historical development of this method. In examining the stool it is essential to pay attention to the mechanical changes of the food in the digestive tract, especially to see what particles of food remained in coarse pieces—which would indicate poor work. For this purpose a stool sieve can be advantageously used. About forty-two years ago I devised a stool sieve which is simple and practical (Figs. 1 and 2). Coarse particles, such as food, foreign bodies, gallstones, intestinal parasites and other indigestible particles can be quickly recognized by letting water run through the sieve and turning the crank under running water from the faucet.

One day, after examining the stool of a patient who complained a great deal of abdominal pain, I found a collection of several tablespoonfuls of grape pits left on the stool sieve. I forbade the patient to swallow the

*Read before the New York Medical Union, October 27, 1942.

pits when eating grapes, and she recovered quickly, not requiring any other medication.

In order to study the motor functions of the intestine I then used small porcelain balls (instead of grape pits) in order to ascertain the time of their appearance in the stool. This gave me an idea of the motor function of the intestine. A little later I took up the subject of coating these porcelain balls with various substances, which would digest either in the stomach or in the intestine, in order to ascertain whether they were digested

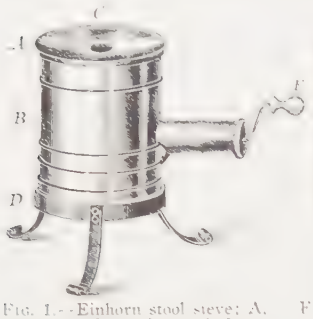

FIG. 1.—Einhorn stool sieve: A, cover; B, flour sieve; C, large opening; D, tripod; E, handle.

FIG. 2. Einhorn's stool sieve: section. F, stirring apparatus; G, hemisphere of wire netting

or not; but this was found impractical. They either dissolved in water or would appear unchanged in the stool. That meant the chemist could not construct the substance I desired.

In 1904 I conceived the idea of taking, instead of purely chemical substances, certain food substances which are found in all kitchens, placing them on beads by tying them with a string, and ascertaining whether or not they would pass through the intestinal tract, and whether or not they would disappear. This plan has been carried out with success. Before arranging for such a test I had to find out how such food stuffs would behave under normal conditions and a series of experiments have been made by me to ascertain these normal states. Then I was enabled to pass on to the consideration of pathological conditions and their findings. I proceeded as follows:

With regard to the digestion in the stomach we would take beads with a variety of food materials attached, these beads being held together with a little string. On these beads there were potato, thymus gland, fish bone, catgut, mutton fat and meat. Here we had six different beads holding six different substances which we found disappeared in the digestive tract. The question arose whether or not they would all be digested in the stomach. When the beads were recovered in the stool, it was readily found whether or not the foods were digested. If the foods attached to the beads were not digested that pointed to the fact that there was something wrong with the digestion, either of the stomach or the intestinal tract.

Now comes the time for making a differential diagnosis. It is done in this way.

Beads with potato, catgut and the other test substances are swallowed. These beads are attached to a string so that they can get into the stomach (the length of the thread being eighteen, nineteen, or twenty inches), but cannot get through the pylorus. The distance from the teeth to the pylorus is about twenty-two inches. These beads were left in three, four, five or six hours; they were then taken out in order to ascertain what action the stomach secretions had upon these substances. I have found in numerous cases that catgut and fish bone disappeared entirely in the stomach within two or three hours, but the potato, meat, thymus gland, and mutton fat still remained. Catgut and fish bone serve as indicators for gastric digestion. I have experimented upon a man at the German Hospital, giving him several beads which had attached to them fish bone and catgut surrounded by mutton fat. They passed through the intestinal tract, the mutton fat preventing gastric digestion.

With regard to meat, it was formerly thought that digestion occurred in the stomach, that the stomach was the organ for the digestion of meats. In reality this is not the case, unless the meat has remained there an abnormally long time (say twenty to twenty-four hours) and then it would be dissolved. In six hours the meat never entirely disappears, but merely becomes

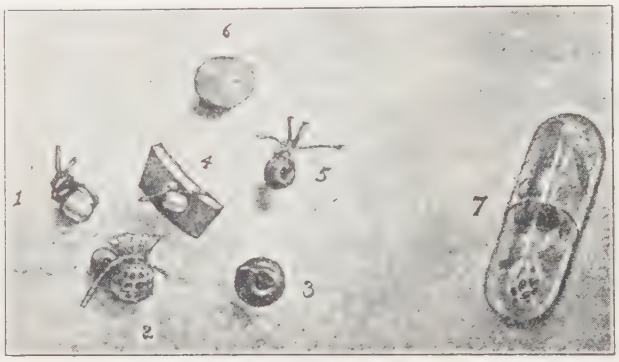

FIG. 3.—1, catgut bead; 2, thymus bead; 3, fish bone bead; 4, potato bead; 5, meat bead; 6, mutton fat bead; 7, digestive test capsule.

succulent; it becomes swollen or puffed up. The connective tissue surrounding the meat fibers disappears, the substance of the meat remains. Potato that has been boiled for two minutes remains. In the case of the thymus the connective tissue will partly disappear in the stomach but the entire glandular tissue will remain.

Catgut and fish bone are two substances which I take for indicators of gastric digestion, judging whether they disappear or not after a certain period of time. It

FIG. 4.—Bead string with food substances attached; a, mutton fat; b, meat; c, thymus; d, potato; e, catgut; f, fish bone; g, silk thread.

is interesting in these cases to learn if the stomach, or its secreted juice, is able to act upon these substances.

The other substance that I use in testing the digestion in the intestine is thymus gland and I use this gland because of its nuclei. The nuclear digestion takes place in all probability because of the pancreatic juices, although this is not definitely known. The use of the thymus helps to test the pancreatic function (Fig. 3).

Potato, meat and mutton fat represent the three main food groups; carbohydrates, albuminates and fats which are digested in the intestine. If we find that there is any trouble there, we have to look to see how these things get out and, therefore, I make use of these beads,

six in number, which are in a capsule. The beads are swallowed and then looked for, found and examined after they have appeared in the stool of the patient. Sometimes two or three only would appear in the first stool and they, of course, would be collected, and the others would remain behind for some time, even though the motility was not much impaired. To overcome this, I arranged to tie them all together on a string (Fig. 4). In this way they all come through together.

Preparation of Food Beads

Instructions with regard to the preparation of the test-food beads and also their administration:

1. *Catgut.*—Take raw catgut 00, draw it through the bead and tie the ends together.

2. *Fish bone.*—As the ordinary fish bone breaks when tied in a knot, it is best to use the long bones from a pickled herring. The bones are first washed in water, then rubbed with a cloth. They are then kept in water in a bottle, and when wanted, are taken out of the water, drawn through the bead and tied in the same manner as the catgut.

3. *Meat.*—The muscular fibers of raw beef are cut lengthwise in the direction of the fibers and in pieces five to six cm. long, one cm. thick. These are preserved in a bottle, and when wanted, are taken out of the water. Of meat from the alcohol bottle, tear off lengthwise a muscular fiber two to three cm. long, one mm. thick, draw it through the bead and allow the ends to overlap; next tie the ends fast together over the bead with a silk thread.

4. *Thymus.*—Raw sweetbread from the calf is cut in cubes and preserved in weak alcohol. For use lay a small piece about two mm. long on a small square of gauze, fold the four ends of the gauze together and tie with thread, so that the small piece of thymus lies enclosed as in a purse; then fasten the gauze purse to a bead.

5. *Mutton fat.*—Beads with a large opening (1.5 to 2 mm. in diameter) should be dropped in hot rendered mutton fat and after a minute taken out with a forceps and placed in a vessel of cold water. This congeals the fat. Then they are placed on a piece of pure filter paper and allowed to remain there until thoroughly dried. The beads can thus be kept as long as desired and are ready when wanted for use.

6. *Potato.*—Boil a piece of potato with peel on in boiling water two minutes. Take it out of the water and cool it off. Now cut a small piece of potato with peel 1 cm. long, 0.5 cm. wide, and 1.5 to 2 mm. thick, and attach it to a bead.

Two and more food substances may be attached to one bead. For instance, catgut and fish bone, meat and thymus. The test beads can all be kept on hand with the exception of the potato, which always must be freshly prepared. Meat and thymus beads are best kept in weak alcohol. Catgut, fish bone and fat beads are simply preserved dry.

Of late I have used the double substance beads, tying them together with a string (Fig. 4). The bead string is placed in a gelatin capsule[1] and so administered best shortly after a meal.

[1]The digestive test capsule (containing the bead string with the food substances) may be obtained at Eimer and Amend, 49 East Thirty-fourth Street, New York City. It must be used, however, within a few days after its delivery.

Indications and Contraindications for the Application of the Bead Test

The bead test should be used in all cases in which a more thorough knowledge of the functions of the digestive apparatus is desired.

The bead test is not permissible in all pronounced stenoses of the digestive tract, stricture of the esophagus, stomach and intestine.

By means of this method we can ascertain the functions of the stomach and intestine: we can also ascertain the state of gastric and intestinal digestion. In fact we have the means of ascertaining the state of the entire alimentary tract, information that is most important.

The use of the digestive test capsule does not inconvenience the patient at all; he takes his ordinary foods, and the examination is very simple. We merely look for the beads in the stool, wash them out in cold water, spread them out in a porcelain dish and find out whether the substances are there or not. In the case of the potato, only the peel will be found if conditions are normal; also the fish bone, the mutton fat and the other substances will have disappeared. They will all have faded away.

I think the examination of the test capsule is far more important than the examination of the gastric contents; it shows us just what the digestive tract is accomplishing. What we want to know is whether a person is able to digest his food properly and by means of these beads we can determine the state of his digestion. I consider that, as a rule, the state of digestion as ascertained by means of the test capsule is of more value than any information obtained by the introduction of a tube. While a classification of the diseases of the digestive tract may be arrived at and the functional state ascertained and noted by the examination of the contents of the stomach brought out by the use of the tube, the test capsule is far better for determining the condition of the entire alimentary tract.

It is only recently that we have begun to see just what is wrong. When we found formerly that there was something wrong with the digestion, when the patient complained of pain or other disturbances in the abdomen, it was difficult to see if there was anything really wrong in regard to pancreatic action or the intestinal functions. By means of this test we can readily find out if there is any deviation from the normal. I have tried to classify the disturbances of intestinal digestion according to the results of the bead test in the following way:

Classification of Disturbances of Intestinal Digestion

First: Those cases in which all the substances, carbohydrates, fats and proteids are undigested; in fact, all the substances that are attached to the beads return. Where they pass unchanged there is present one of the gravest forms of disease, "dyspepsia intestinalis universalis". This group is met with in many cases of achylia gastrica, a condition in which there is no gastric juice at all. Yet, in one-half of all such patients, the food is digested in the intestines and they appear to get along well. A small number of these patients, however, also have disturbances of the intestinal tract and in these cases especially the test is of great import. We cannot always cure these patients, but we can ameliorate their condition very much by our treatment.

Second: There are conditions in which not all the substances are digested; only one or two. For instance, in a great number of patients the starchy foods are not digested and there is set up a fermentative indigestion, or a fermentative dyspepsia. These patients suffer much from flatulency. This variety is often combined with disturbances of meat digestion or in fat digestion as well, "dyspepsia intestinalis partialis".

Third: There is a class in which the meat does not digest well, and this is an important variety. These patients complain of nausea, bad taste in the mouth, putrid odor of the stools, a condition in which meat digestion is not properly carried out and the meat appears on the beads in the stool.

Fourth: There is a class where the patients complain of intestinal disturbances and yet upon examination the digestive processes are found to be all right. This is the variety which is designated as nervous intestinal dyspepsia, the symptoms being entirely of neurotic origin. Similar conditions are found in the stomach and are classified as such. There is in fact nothing organically wrong.

Treatment

With regard to the treatment, first, as to diet; naturally if we find a substance by means of the bead test that is not digested, that should be eliminated from the diet. I am not so much in favor of eliminating entirely a food group as I am for restricting it. I allow my patients with starchy intestinal dyspepsia to take as much fat or butter as they wish, plenty of meat and little carbohydrate. I also try to aid digestion by the administration of artificial means. I have used taka diastase when there is much disturbance in starch digestion; here we are adding something which will help in the conversion of the starchy food into sugar. I give five grains of taka diastase three times a day and this has been followed, in my experience, with great benefit in all these troubles with faulty starch digestion. Of course, there are other remedies which can be used and especially the pancreatic ferments when there are disturbances in the digestion of fats and albuminoids. In these instances it is well to coat the agent to be given with salol in order that it will pass through the stomach unchanged. This will help digestion very much in these cases. In cases of socalled nervous intestinal indigestion, we must give the nerve remedies, and employ besides such means as hydrotherapeutics, and so forth, and treat the system according to the indications. If the digestion is good but the patient is afraid to eat, gain his confidence and let him know that eating will hasten his recovery.

Summary

To repeat, we have the following classifications:

Group I: Pure nervous intestinal dyspepsias.—The patients complain of various symptoms—fullness, wind, restless sleep, inability to concentrate, general weakness, and lack of energy. Examination reveals an entirely negative result. The mobility is good and the bead test shows normal digestion.

Group II: Genuine intestinal dyspepsias.—Besides numerous subjective complaints (tension, rumbling, irregular stool, etc.) the bead test shows evident deviations from the normal. This group can be subdivided into two subordinate divisions:

(a) Cases in which the digestion of all three nutritive substances (albumen, fat, carbohydrate) is disturbed—"dyspepsia intestinalis universalis seu completa".

(b) Cases in which the digestion of one or two nutritive substances is faulty—"dyspepsia intestinalis partialis".

I tried to ascertain whether the different types of intestinal dyspepsia could be recognized from their subjective complaints, which would correspond with the result of the bead test. The following seemed to me to be of importance:

In the large group of disturbed starch digestion the subjective symptoms are relatively insignificant. They consist mainly in complaints of fullness in the abdomen, frequent eructations, and expulsions of wind. The condition of the stomach varies. It may be normal, or hyperchlorhydria, subacidity or achylia may exist.

The group of disturbed meat digestion is characterized by the following syndrome. There is usually nausea present and a bad taste exists in the mouth; flatus is frequent and especially malodorous. The stool smells like decay. Patients may be well nourished, but they suffer a great deal. Diarrhea is not necessarily present.

The class of disturbed fat digestion is characterized by the occurrence at times of attacks of intense abdominal pain; the stool is usually less consistent and of a lighter color. At times subjective symptoms are entirely absent.

In the mixed groups the clinical picture is still harder to define because the various symptoms are less marked. In dyspepsia intestinalis universalis the clinical picture is rather severe: lack of appetite; general debility; usually, although not always, diarrhea is present. Abdominal pain is frequent. I have nearly always found achylia gastrica in this group.

In dyspepsia intestinalis universalis fluid and semifluid diets are indicated: milk, kumyss, raw and soft boiled eggs, meat powder, sanatogen, or similar preparations, soups, fine gruels, and leguminous vegetables in mashed form, crackers or zwieback, tea, cocoa, malt, and beer. As soon as the patient improves, the diet should be increased by adding fish, rice, mashed potatoes, and later white bread, scrambled eggs and a small quantity of tender meats. After a rational treatment the bead test very soon shows a better result.

In the cases of partial intestinal dyspepsia the food stuff that is not so well digested should be reduced and given in finely subdivided form.

Just as in functional diseases of the stomach, a generally invigorating treatment is of great importance also in intestinal dyspepsias (where no organic trouble is present, as ulcers, cancer, etc.). Thus hydrotherapeutic and electrotherapeutic measures are of value. Climatic cures, life in the open air, free from care, will be of great assistance in accomplishing a considerable improvement or an entire restoration to health.

In dyspepsia intestinalis universalis, also those forms of dyspepsia intestinalis partialis in which the albumen or fat digestion is disturbed, the pancreas preparations (especially pankreon or holadin) have seemed to be of benefit.

In that great class of intestinal dyspepsia in which the starch digestion alone is disturbed, taka diastase (Takamine) has proved of especial value.

20 East Sixty-third Street

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THE NUTRITIVE VALUE OF CANDY BARS

Their Importance in the Wartime Diet as an Energy Food

FREDERIC DAMRAU and MILTON A. LESSER
New York, N. Y.

(Continued from page 47)

Comparison of Candy Bars with Other Sources of Food Energy

A comparison of the calories available from the typical candy bar (38) (as determined by analysis) with the calorie content of like weights of standard foodstuffs providing sources of energy in the ordinary diet, serves to substantiate the value of candy as a compact, economical, heat and energy supplying food. Thus the typical candy bar under consideration supplies more than five times as many calories, weight for weight, as boiled white potatoes; namely, 297 calories for the 64 Gm. candy bar as against 55 calories for 64 Gm. of boiled white potatoes. In potatoes 93 percent of the calories are derived from starch, whereas in the candy bar only 52 percent of the calories are derived from all carbohydrates combined.

Another staple food used primarily as a source of energy is bread. A slice (household measure) of white or rye bread, weighing 25 Gm., provides 65 calories or only 22 percent the value of a typical candy bar. Weight for weight, 64 Gm. of white or rye bread supply 166 calories or only 56 percent the value of the candy bar. Furthermore, 80 percent of the calories in white bread and 84 percent of the calories in rye bread are derived from carbohydrates in comparison with only 52 percent for the typical candy bar.

These comparisons are fair and practical, because both potatoes and bread are consumed solely for their energy value and the candy bar serves the same purpose in the dietary.

Value of Candy Bars in Terms of Work Units

The value of any food in terms of work units may be calculated from its caloric value. The unit of work is the kilogrammeter, which represents the energy required to raise one kilogram a meter vertically against gravitational force at the latitude of Paris, equivalent to 7.24 foot-pounds and equal to one thousand grammeters. According to the standard conversion factor, the calorie is equal to 426.5 kilogrammeters. It must be remembered that the human machine is only 21 percent efficient because of loss of heat and energy in the basic maintenance of life.

On the basis of its food energy value of 297 calories, a typical candy bar yields 126,671 kilogrammeters in terms of work units, which is equivalent to 917,094 foot-pounds or 27.79 horsepower per minute. These impressive figures explain why a candy bar proves so effective in helping a soldier, athlete or workman to continue strenuous exertion under conditions which would otherwise produce extreme fatigue.

How Sugar Aids Physical Performance

The medical literature offers several convincing reports on the value of candy as a source of energy, both for heavy exercise and for sustained physical effort. Among the frequently cited studies are those of Levine, Gordon and Derick (42). These workers observed that the exhaustion of marathon runners could often be correlated with low blood sugar levels. Runners with extremely low blood sugar levels presented a clinical picture of hypoglycemic shock similar to that seen after an overdose of insulin. Hence, these workers suggested that an adequate ingestion of carbohydrate before and during any prolonged and violent muscular effort would be of benefit in preventing the hypoglycemia and the accompanying development of exhaustion symptoms. For use during such exercise they advised the ingestion of lime candy drops or any other form of sweets.

In a subsequent paper a year later, Gordon, Kohn, Levine, Matton, Scriver and Whiting (43) reported the results of continued studies along these lines which corroborated the value of their suggestions. In addition to being advised to eat moderately large amounts of carbohydrate before the race, the athletes were supplied with glucose candies to be eaten from time to time while running. They were also supplied with tea containing large amounts of sugar at stations along the course.

In contrast to the findings of the previous year, all runners showed normal blood sugar levels. Moreover, there was a striking improvement in the general physical condition of the athletes. In a number of cases the running time had improved over the previous year and the participants finished in better positions.

"It seems, therefore," concluded these workers, "that the picture of exhaustion, weakness, shock and other symptoms of hypoglycemia following prolonged effort may be prevented by the adequate and timely ingestion of carbohydrate."

More recently, Michael (44) showed that these benefits could also be utilized advantageously in less strenuous forms of exercise or competition. In a series

of blood sugar studies on golfers, he found that the eating of more ketogenic types of lunch and the consumption of sugar or candy at the seventh hole (for a foursome) and at the ninth hole (for a twosome) resulted in a definite decrease of physical and mental fatigue. Better scores, on the whole, were also obtained on this regimen.

Clinical Uses of Candy

Medical literature is replete with suggestions for the clinical use of candy. Thus Blackham (45) recommends dextrose or candy as a prophylactic against seasickness and reports that the use of sweets alleviates the symptoms when they appear. Bridges (46) lists candy as useful for acidosis (nondiabetic ketosis). Candy has an obvious rôle as a supplementary food rich in calories for underweight individuals, especially those of the asthenic type, when combined with suitable proportions of the essential ingredients of vitamin B Complex (thiamine, riboflavin and niacin) as a vitamin supplement to the diet.

"One of the best preoperative preparations which the patient can have," writes Brooks (47), "is a pitcher of water and a box of candy."

One of the prime requisites for preparing patients for thyroidectomy is that the diet administered should be sufficiently high in calories to produce a gain in weight. Usually four to five thousand calories daily is required (Thompson, 48). DeCourcy (49), an authority in this field, states the requisite high calorie diet must consist of easily digested materials. He advises that candy may be permitted *ad libitum,* unless there are diabetic complications.

It has often been said that a man who likes candy rarely becomes a drunkard. In an interesting paper entitled "Alcohol or Candy," Tucker (50) reports on the use of this knowledge in the treatment of alcoholism. He believes that in many cases a hypoglycemic state exists which is starving the patient of sugar. Many periodic drinkers indulge in alcohol to help overcome their mental depressions. Such a condition may be due to deficiency in sugar metabolism, according to Tucker. Instead of turning to sweets, such persons use liquor.

It is, therefore, of more than passing interest that some of the alcoholics studied by Tucker said that they could stave off drinking for a period by eating an excess of sweets. This investigator found that the addition of candy to the diet of persons taken off alcohol not only reduced the craving for liquor but also raised the blood sugar and afforded a renewal of energy. Men working at top speed and pressed down by heavy responsibilities are prone to turn to alcohol because of its quick apparent stimulation. That so many men prefer candy to liquor is worthy of more consideration.

Moderation Important

Moderation in the consumption of candy is to be recommended. There can be no arguing with the view that the excessive use of candy, as of any other single food, should be discouraged The flavorful sugars, fats and other nutrients that go into the making of candy and serve as an important, inexpensive source of calories should not displace nutritionally indispensable foods, particularly the socalled protective foods (milk, fruit, vegetables, eggs and possibly meat). Like other foods, candy bars have a valuable place in the daily diet, being especially useful to lend satiety to a meal or as a between-meal supplement as a source of heat and energy for hard working men and women.

The Council on Foods and Nutrition (51) has properly condemned a disproportionate consumption of sugar in the form of candies and sweetened carbonated beverages. Their report emphasizes the fact that provision must be made in the daily diet for vitamins and minerals as well as calories. In this connection the need for the addition of vitamin B_1 to staple American foods (enrichment) was emphasized by Cowgill (52) in 1939.

Since a typical candy bar (38) provides approximately one-tenth the daily caloric requirement of an average working man, it is obvious that candy should not be eaten to such an excess as to interfere with the consumption of foods which normally supply the daily requirement of essential vitamins and minerals. In other words, an inordinate proportion of the daily caloric intake should not be in the form of sugar or candy. Fortunately, appetite satiation operates as a very effective brake against the overeating of candy. Unlike the bread or potato eater, who frequently indulges in carbohydrate sprees, the candy eater seldom exceeds his physiological requirements because of the cloying sweetness.

There is no single perfect food, not even milk, so that every article of food should be considered with respect to its particular place in the balanced diet. When a candy bar is recommended as a rich source of food energy for soldiers or civilians doing hard physical work in the war effort, it is understood that it should not be consumed to the extent of replacing milk, meat, fish, eggs, vegetables and citrus fruits in the diet.

The handicap that candy provides additional carbohydrate without a proportionate increase in the intake of vitamin B_1 (and possibly also riboflavin and niacin) required for its oxidation is best overcome by the growing use of vitamin B complex preparations to supplement the daily diet. Both the Council on Pharmacy and Chemistry and the Council on Foods and Nutrition (53) recognize the prevalence of vitamin B_1 deficiencies in association with poverty and improper dietary habits and accept vitamin mixtures which provide one mg. thiamine (333 U.S.P. units of vitamin B_1) in the recommended daily intake. This is the amount which has been established by the Food and Drug Administration as the minimum adult daily requirement, while the National Research Council recommends 1.8 mg. thiamine for daily intake. Consideration, also, should be given to the riboflavin and niacin requirements.

An insufficient supply of vitamin B_1 is not peculiar to consumption of candies. The "average" American diet has been found to be inadequate except when its foods other than flour and sugar are very wisely chosen. Even foods which are naturally rich in vitamin B_1, especially vegetables, lose a large proportion of this vitamin by excessive heat and washing out in the process of cooking.

Consumption of Candy Not Excessive

Statements to the effect that excessive amounts of candy are eaten by a large proportion of poorer Americans to the detriment or neglect of other foods are not

borne out by statistical evidence. On the basis of numerous statistical studies, Sherman (54) estimates that the typical American food budget spends about five percent for sugar and other sweets—a very moderate proportion.

Figures assembled by the United States Department of Agriculture (Stiebeling and Phipard, 55) show that the consumption of jellies, jams, syrups and candies is variable in different parts of the country. In general, however, more of these foods were bought at higher than at lower food expenditure levels. These items constituted only about one-eighth of the total sugar and sweets in the North Atlantic section diets.

There is another common misconception concerning the candy industry. Many individuals believe that excessive quantities of sugar are utilized by this industry in the manufacture of its products. Actually, according to statistics presented by the U. S. Department of Commerce (Nemir, 40), the candy and confectionery industries combined utilized only 6.4 percent of the estimated consumption of sugar in continental United States in 1941. Even so, this quantity of sugar was only twice that consumed in the production of dairy products including ice cream (3.2 percent), which industry is never looked upon as a large sugar consumer.

It has been said without scientific proof that candy is responsible for tooth decay. This is indeed a controversial subject. According to Fishbein (16), however, "there is now considerable doubt that the eating of candy is in any way related to tooth decay".

Summary

1. Candy bars furnish a concentrated, highly palatable food, which when properly used as a part of the diet provides a good source of readily utilized calories essential for the energy and fuel needs of the industrial worker, the soldier and the growing child and adolescent. Enriched candy constitutes an integral part of the soldiers' diet, particularly the field ration.

2. Candy, as exemplified by the modern candy bar, does not consist solely of carbohydrates but also contains a large proportion of fats and some protein. Army rations indicate that the candy bar can readily be further rounded out with respect to optimal nutritional requirements, including enrichment with thiamine and possibly also riboflavin and niacin.

3. The rôle of candy bars in nutrition is to supply balanced proportions of carbohydrates and fats as sources of energy for hard physical work. Since candy satiates the appetite, it largely protects itself against overindulgence. Hence the danger of replacing other essential foods is greatly minimized.

(Continued on page 114)

PAGET'S DISEASE

HENRY G. HADLEY
Washington, D. C.

Paget's disease was first described by Paget in 1872 (1), but its causes were stated by Gold (2). A recent study of the relation of the hepatic function indicates that the condition may be due to a disturbed hepatic function in relation to the process of transforming carotene into vitamin A (3).

In Paget's disease there is continuous resorption and deposition of bone. The resorption is due to osteoclastic activity and is accomplished in an irregular fashion. The new bone laid down in these resorbed areas is attached to the old structures by a wide and deep staining cement substance, a phenomenon which imparts the characteristic mosaic appearance. The picture is that of an attempt on the part of the skeleton to replace and compensate for the loss of the original bone, while Paget considered it to be inflammatory (4). Others believe that disturbances of the ductless glands are causative factors. Hoehlig and Adler (5) thought the pituitary gland was primarily involved and the parathyroid secondarily. Hanke (6) thinks that constitutional inheritance plays a major rôle and reports four brothers in whom the disease occurred after forty years of age. Also, these four men were low in the vitamin A content of the blood (7).

It appears to be a trophic disturbance, for in many cases there is a true hypercalcemia present with osmotic changes occurring, and a tendency to water retention and more or less oliguria. There is often an increase of basal metabolism and hypoglycemia. Lipemia, with an increase of neutral fats and a parallel hypophosphatemia, is reported (8). Arterial hypertension may be an associated condition.

Case Report

Mr. F. S. C., a white man, aged fifty-eight, suffered from weakness and pain of the left leg. X rays showed characteristic findings of Paget's disease. The diet appeared to have some influence on the progress of the disease, for the patient found that with a high fat and protein diet he became unable to work, while with a vegetarian diet, excluding all animal products such as milk and eggs, the pain subsided and he was able to follow his occupation as a machinist.

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Symposium on Historical Medicine

AMPUTATIONS AND PROSTHESES THROUGH THE CENTURIES

BERNARD J. FICARRA
Brooklyn, N. Y.

Let us
". . . . delve into the depths of time and
Bring forth from out the ages that have rolled
A few small fragments of those wrecks sublime
Which human eye may never more behold."
Making of a Surgeon, by Gatewood

Introduction

A narrative on amputations is of necessity a reiteration of surgical progress. As medical knowledge pierced the darkness of ignorance epochs were created in the progress of surgery. With this advancement the removal of an extremity because of injury, disease or deformity became a scientific procedure. After the removal of a limb, the need for a substitute became self-evident. In response to this necessity the prosthetist became closely associated with the surgeon.

Prosthesis is a Greek term meaning an addition. By definition it signifies the supplying of a lost leg, eye, tooth or other part by an artificial one. In this discussion the word is used in reference to synthetic arms or legs. The word amputation is derived from the Latin preposition *ambi* meaning around and the verb *putare* to prune. By common usage it has been accepted to signify "the cutting off of a limb or part of a limb, the breast, or other projecting part" (18). The application of the word in general surgery refers more specifically to the removal of an arm or leg, in whole or in part. Many modifying words have been used with amputation in order to describe the type of procedure. The most commonly employed terms are: transfusing, central, coat-sleeve, diclastic, oval, osteoplastic, circular, kinematic, elliptical and guillotine amputations.

The Ancient Period

Among the first duties of the ancient surgeon was the repair of broken arms and legs. His primary concern was to set bones and to bind fractures. War tremendously assisted in developing this branch of surgery. The military surgeon became essentially a bone surgeon. Whenever the arm or leg of a warrior could not be saved, it was removed. The criterion for amputation was founded upon Hippocratic precepts:

"When gangrene supervenes in a fracture, the soft parts separate quickly; as for the bones, they become detached at the limit of their exposure; but much more slowly. It is necessary to remove whatever dies first below the lesion from the healthy parts avoiding pain as far as possible, for patients die from fat embolism" (7). Thus the ancients performed amputations to remove useless members, to reduce invalidism and to save life.

The loss of limbs resulted from causes other than war: disease, accidents, cruel punishments for crime accounted for many amputations. During the Middle Ages, the loss of arms and legs was very great. This was due in part to the devastating effects of leprosy and ergotism. With the utilization of cannonshot (first used at the Battle of Crécy in 1346) and half-pound gunshot (used at Perugia in 1364) the resulting wounds were so mutilating that amputation was a necessity (4).

To replace the missing extremity the stumps were bound up in long splints. Crutches and wooden legs were used for support. It is difficult to establish an exact date as to when and where prostheses were first employed. Early references can be found in ancient literature and many pictures representing appliances are seen on antique artistic works.

Prostheses for missing extremities are mentioned by the Greek historian Herodotus. "A picture on an Italian urn showed that the prosthesis consisted of a simple wooden capsule. The same type of prosthesis is depicted on an old Peruvian vessel. An artificial leg of remarkable workmanship was found in a grave dating back to 300 B.C. It was essentially a prosthesis with side bars made of thin bronze which were fastened with bronze nails to a wooden base" (15).

"In the cathedral of Lescar (Lower Pyrenees) which according to some authorities (Longperier) belongs to the Gallo-Roman epoch, according to others (Raymond) to the twelfth century, is portrayed a negro whose left leg, lacking the foot, takes its support at the knee from the socket of a wooden pylon exactly like those in use at the present day. Rivière also describes the counter drawing of a fragment of a vase found in Paris (1862) in which is shown, among other figures, a man seated in a chair with a high back, whose right leg, amputated about the seat of election, is attached to a pylon (a temporary artificial leg) with a forked end" (16, 17).

These pictures depict rough apparatuses which the poorer classes of maimed are in the habit of making for themselves. Similar situations are portrayed more clearly in the engravings and pictures of Matsys, Bosch and Breughel than in prehistoric vases and mosaics. The frescoes in the cemetery at Pisa by Orcagna and those of Penni in the Vatican display these deformities and appliances most clearly (4, 16, 17).

One of the oldest known artificial limbs can be seen in the Royal College of Surgeons in London. "It was unearthed in an ancient tomb in what was the battle-torn city of Capua in southern Italy. It dates back to the Samnite Wars (300 B.C.) when the highway was being built and the foundation laid for the mighty Roman Empire." (6)

Literary References to Prostheses

Studies of the nonmedical literature of the past reveal interesting notations on artificial limbs. Proba-

bly one of the earliest references can be found in the comedies of Aristophanes (circa 500 B.C.). This author writes of a leg support worn by an actor in one of his plays.

Herodotus (484 B.C.) tells of a native seer named Erasistratus, who was imprisoned by the Spartans and condemned to die. While in prison he cut off his foot which chained him to the death cell. He fled thirty miles to the city of Tigea where he provided himself with a wooden leg after the wound had healed.

In the ancient religious Talmud several references are made to pylons and artificial limbs (16). The Roman writer Pliny the Younger mentions General Marcus Sergius. This Roman general lost his right hand during the second Punic War (218-201 B.C.). Subsequently he had an iron hand constructed which he used with great dexterity in battle. This Marcus Sergius was the great-grandfather of the nefarious Cataline who was scorned in public by Cicero, the distinguished orator and statesman.

The *Acta Sanctorum* and other medieval chronicles mention wooden legs and artificial supports for those who have lost an extremity. The earliest iron hand is seen in a picture of 1400 (4). The relationship between this statement by Garrison and the Alt-Ruppin hand can not be correlated. However, this artificial hand is the most ancient known: it is dated about 1400. The hand with fragments of armor were reclaimed from the Rhine mud. Gurtl published several drawings of this apparatus. It is placed in this period because an analogy exists between the forearm of the Alt-Ruppin apparatus and that of Von Berlichingen.

An illustrious German knight named Gottfried von Berlichingen achieved fame as the champion of the peasants against the nobles. In 1509 when he was twenty-three he lost his hand during the siege of Landshut in Bavaria. His exploits were the subject of one of Goethe's dramas. Herein we read that the monk Martin asked Gottfried's name and the warrior offered the monk his left hand. Martin was offended. "Why do you offer me the left hand? Am I not worthy of knightly courtesy?"

To this Gottfried replied, "Were you the emperor himself, you must be content with this. My right, though not useless in war, is insensible to the pressure of love. It is a part of my glove; you see, it is iron."

Martin courtesied and kissed the iron hand which revealed to him the name and heroism of the altruistic captain. Later in this work Gottfried spoke thus of his iron hand: "It has rendered more service in the fight than ever did the original flesh." This warrior had several hands made which were movable in the joints, had flexible fingers capable of closure.

Several copies of the hand of von Berlichingen were made. There is one in the Museum at Vienna reported to have been constructed for Emperor Joseph II. Another can be seen at the armory of Bredow of Wagnitz (Mannheim). A third hand is in the famous Meyrik collection in Wales.

Guido Guidi (died in 1569), the Florentine surgeon, practised successfully at the court of Francis I of France. Guidi writes in his book (Book IV, Chapter 7) of a patient whose forearm was removed and replaced by an iron one. This extremity served not only as an ornament but was quite useful (16, 17).

More descriptive information on two cases is supplied by John Minadoi, a surgeon of Rovigo at the end of 1500. "As medical attendant of the Venetian consuls, he traveled widely in the Orient. He wrote a history of the war between the Prussians and Turks (1576-88). He was physician to William Gonzaga, Duke of Mantua and professor at the University of Padua. At Padua he observed two amputation cases. In one instance, after the loss of both hands, the patient by means of an iron apparatus could take off his hat, open and shut a purse as well as sign his name. The other lost his right hand and could do many acts with an improvised hand" 16, 17). Other scattered references can be found relating to the sixteenth and seventeenth centuries.

Paul Giovio relates that the Turkish corsair, Horuk, surnamed Barbarossa, lost his right hand in the battle of Bugia against the Spaniards (1517). An iron hand was made up to the elbow which he used with great ease in successful battles (16, 17).

Mention is made of an artificial hand in the French wars. There was a Huguenot general who lost his hand in the battle of Fontenoy (1570). His loss was replaced by one of metal resulting in his name "Iron Hand." Duke Christian of Brunswick, who had lost his left hand at the battle of Fleury (1622), had an iron arm made by a Dutch workman.

In George Eliot's *Middlemarch*, an account is given of "Mr. Chessher and his irons." This refers to the surgeon Robert Chessher (1750-1831) who achieved a great reputation for his appliances for supporting fractured legs and spines. It is presupposed that he experimented with artificial limbs.

Moby Dick is a famous American novel by Herman Melville which relates the experience of whalers. The story tells of many sailors who lost their extremities pursuing this hazardous occupation. The plot of this story concerns Captain Ahab. He was a one-legged man wearing an ivory stump to replace the missing leg. This leg was bitten off by the whale called Moby Dick. The entire plot concerns the captain's vengeance which culminates in the death of the whale.

These are some of the scattered references to artificial limbs found in the tales of long ago. Most of these apparatuses were fashioned for utility, however crude they might have been.

Fifteenth to Seventeenth Centuries

The most important occupation of the majority of people during these centuries was warfare. Much rudimentary progress in amputation and prosthesis owed its impetus to the exigencies of warfare.

In European museums are seen several appliances which are characteristic of these centuries. Dr. Putti, professor of orthopedics at Bologna, studied these mechanical extremities. His research took him to the Stibbert Museum in Florence and the Poldi-Pezzoli Museum in Milan.

At the former institution he described an iron prosthesis of 1330 grams. This consisted of upper arm, forearm and hand. The opening of the armpiece was furnished with a ring which allowed small movements of rotation in the apparatus. This ring had a hollow corresponding to the axilla. The fold of the elbow had an anterior protection similar to that found in armor. This arm permitted 180 degrees extension and 75

degrees flexion. Movements were controlled by a metal button projecting on the anterior surface of the forearm. Range of motion for the fingers was greatly limited. A series of holes about the edge of the armpiece were noted. Nothing was presented to show how it was suspended from the stump or shoulder (16, 17).

Another apparatus of the fifteenth century at the Stibbert Museum is made of sheet metal for the left hand. It weighs 530 grams, was designed for working and shows no attempt at beauty of design. The construction is coarse. When the fingers are closed into a fist, pressure on a button results in full extension of the fingers due to a spiral spring mechanism. The hand was attached to the forearm by four metal plates (16, 17).

A sixteenth century apparatus is exhibited at the Poldi-Pezzoli Museum. This iron prosthesis is for a right arm stump. It was attached by a strap and buckle. The upper part of the arm was embellished similar to armor of that day. Flexion of 80 degrees and extension of 160 degrees were produced by means of springs. A remarkable feature of the apparatus was that it permitted an anatomical position of the forearm.

Undoubtedly the designer was guided by the esthetic standard of armor construction. Putti concluded that the hand in supination with flexed fingers could be used only for passively holding the reins in riding. At the Imperial Museum at Berlin similar appliances can be seen. All are indicative of the same period (16, 17).

Two other hands are described in the Stibbert collection. One is so roughly formed that the only suggestion of anatomical form is a crude marking of the ulnar styloid process. Yet this hand shows signs of much usage. The second contains numerous holes arranged in artistic figures which lightened the apparatus. This hand was moved by a coiled spring (16, 17).

At the same museum a sixteenth century left lower-limb is on view. The extremity was designed primarily as an ornament. It served the purpose of concealing the mutilation of a knight on horseback. The knee was fixed and could not be completely extended. The shortness of the thigh part would not have maintained an erect position, nor would it allow walking (16, 17).

An engineer of Bologna inherited a family legacy Among the articles was an artificial lower leg constructed about 1616. The apparatus is called the Zucchini limb, for this is the name of the inheritor. The limb was made for the Marquis Francis Riario (1615-74), who was related by marriage to the illustrious Catherine Sforza.

Dr. Putti examined this limb but was doubtful as to the exact type of mutilation or deformity it was intended to conceal. He opened the tomb of the marquis but found not even a bone. Therefore, he drew conclusions from an examination of the limb itself. He believed it was for the right leg and theorized that it was made for a deformity, not an amputation. He decided that the most likely explanation was that it was made to compensate for a shortening. It was thought to hide the deformity of a congenital malformation, most probably an absent tibia. Genealogical investigation corroborated this contention. "The Marquis Alexander was unfortunate in his wife, who bore him three sons, the first deformed in the hands and feet, although he was able to walk and write. The other two were deformed completely" (13).

These antiques are historically interesting as indicative of a past age. Surgically they indicate a landmark in medical history. Although many of the appliances were never used, yet the artisan who constructed them had a definite objective—either functional or esthetic. Some of the hands described may well be termed working appliances which enabled the wearer to exert pressure and grasp objects; others are ornaments to hide what the wearer does not desire others to see. The soldier-knights were vain. They desired to conceal any mutilation. The scars of battle were not badges of courage but rather an indication of inferiority to the enemy. For this reason, the designer of armor would conceal the soldier's loss by copying the armor of the lost limb or by making a metal skeleton.

The fabricators of artificial limbs in the fifteenth and sixteenth centuries were makers of cuirasses, arquebuses and swords. Their products reflect the influence of an art of the period which had reached great perfection in Italy and Germany. "How can one help recognizing the style, decorations and mechanism of armor in the apparatus depicted in the works of von Gerensdorff, Riff and Fabricivs of Acquapendente (1537-1619)" (16, 17).

From the fifteenth to the seventeenth centuries the purpose of the limb-maker was to restore to casualties of war the limb lost on the battlefield. The warrior desired primarily a workable hand for holding his lance or sword. When this was not possible he was anxious to hide his loss. Deformities of the leg were in this category especially when the knight was mounted on a horse. Prostheses, secondarily, were constructed in an effort to help the manual laborer and to improve the appearance of the non-warring maimed. In many of these crude appliances can be seen the architectural principle upon which our modern prosthetic art is founded.

Ambroise Paré (1510-90)

An artificial limb is a natural supplement to a surgical amputation. The surgical procedure should not kill the patient because of hemorrhage, but should produce a useful stump. This could be obtained only after some method of checking loss of blood from the vessels was discovered. Before this discovery, amputations could result only in the destruction of segments of a limb by crushing. The resulting stump was not suited to any type of prosthesis.

Herein lies the fame of Paré. When Francis I fought Charles V, Paré accompanied Marshall Monte-Jean as his army surgeon. During the campaign he had occasion to use his surgical skill in preventing hemorrhage. When he did not have any boiling oil he ligated the arteries and found that this treatment resulted in more rapid healing. With this discovery he announced that he had found a new method. At that time he was nineteen years of age. "Paré thus made amputation what it is today by reintroducing the ligature, which had almost fallen into abeyance since the time of Celsus" (4). He is credited with performing the first exarticulation of the elbow-joint (1536). He introduced massage, artificial eyes (of gold and silver) and perfected artificial limbs.

An artificial hand depicted and described by Paré was constructed in Paris (1550). It is called "le petit Lorrain." The dorsum of this hand has the form of a steel gauntlet. "The thumb is rigid and the fingers are kept extended by four springs fixed in the palm. Paré also portrays another upper limb in which the mechanism controlling flexion and extension of the elbow is clearly shown and easy to understand" (16, 17). An artificial leg, illustrated in this same volume on surgery, was made of sheet metal plate. This resembled an armor which was hiding a peg leg for high amputation. It had a joint at the knee so that the warrior could sit on a horse (19).

For the first time in the history of amputation a scientific approach is noted. In 1564 Paré made the first known attempt in choosing sites of election for amputations. Many of his drawings and descriptions are not unlike some of those in common usage today. For this reason he is rightfully called the founder of cinematic amputation.

(*To be continued*)

AMULETS AND CHARMS IN MEDICINE

WALDEMAR SCHWEISHEIMER
New Rochelle, N. Y.

At the time of the Crusades, according to an old story, a timid soldier asked a friend to give him an amulet for protection. This friend wrote on a slip of paper three times, "Hit back, you coward!", and enclosed the paper in a small silver ball. The timid soldier had to pay a high price for this lucky ball. He fastened it to his clothes and boasted that he was bullet-proof. Of course, he had not read the slip of paper. As a result, he became one of the most courageous soldiers of his regiment. He was lucky enough not to be injured despite the prolonged number of battles in which he participated.

Talismans and amulets bring out the best qualities in many persons and in this indirect way they may produce magic cures in sensitive persons. Modern psychotherapists know this very well, and they look first of all for the mental spot wherefrom they may be able to strengthen the will power of the patient and induce self-confidence in him. Faith-healing is not only the characteristic shelter of primitive and superstitious people; at all times, it has been an important method of treating diseases—physical disabilities. The modern method of psychoanalysis likewise tries to obtain the patient's undivided attention, to gain his utter confidence, and to inspire him with faith in his recovery.

Amulets, talismans, mascots, or charms—they all are intended to be a substitute for lack of self-confidence. Take, for example, a wrestler who wears his metal amulet around his neck; to be without it would mean distress of mind and consequently less efficiency; to have it during the contest would mean invincibility. Yet his opponent, utterly destitute of a charm or a belief in this kind of protection, may defeat him in the struggle. Belief in the amulet, however, will not be destroyed by this defeat; the cause of the failure will be looked for elsewhere. As Redgrove said: "The power of the talisman is the power of the mind (or imagination) brought into activity by a suitable symbol."

In the Middle Ages the use of charms and sorcery was frequent in overcoming the indifference or resistance of the beloved one. According to tradition, the following method was used by women who believed that they had lost their husbands' love, and wanted to regain it. The desperate wife, taking with her a he-goat, went to a cross-road by night, when the moon was new. She waited until she heard the wings of a big bird, then she killed the goat by pushing a long needle into its heart. With a knife, she cut the testicles out of the body, and then buried the dead body of the animal close to the cross-road, using certain mysterious words and ceremonies. Finally, she took the testicles home, chopped them, and gave her husband a salad made of these raw testicles, dressed with oil and vinegar. A mysterious formula was spoken over this unusual food. She hopefully expected that her unsuspecting husband would again fall in love with her.

How may we judge this particular behavior: as mere superstition, as witchcraft, or based on real facts? There are many similar customs; they seem to be without real meaning, and we do not know where they have originated. The use of animal substances as charms or remedies is suggestive of the ancient belief in acquiring bravery by eating the heart of a lion.

These superstitions, however, may perhaps have an actual value. Today we are replacing the testis hormones in cases of hormonal deficiency, and although it still is too early to attempt any real appraisal of its therapeutic value in these conditions, successful results have been reported following the use of the male hormone in underdevelopment or regression of the sexual glands.

Such remedies are said to be indicated for men whose sexual powers are waning. The superstitious action of the jealous wife was based, however, on the very same principle. The success of such love charms could be expected only in cases where the husband's indifference was caused by a lack of hormonal activity of the testes. Maybe a success had been observed in a case of this kind previously, and this observation had been arbitrarily applied to all kinds of declining love.

Love Philters

Superstition mixed with erotic madness led to the use of love philters, which were supposed to stimulate the love of a reluctant partner. The composition of philters was infinitely varied. Here is one recipe taken from the *Zekerboni* of Pierre Mora in the eighteenth century: "To make oneself beloved there shall be taken, to wit, the heart of a dove, the liver of a sparrow, the womb of a swallow, the kidney of a hare, and they shall be reduced to impalpable powder. Then the person who shall compound the philter shall add an equal part of his own blood, dried and in the same way powdered. If the person whom it is desired to

draw into love is caused to swallow this powder in a dose of two or three drachms, marvelous success will follow."

The love philter which caused Tristan and Isolde to declare their love was, however, no true love philter; in Richard Wagner's conception they believed they had taken poison and, in the face of death, confessed their true, hitherto hidden feelings. Here, it is a drastic psychic change which brings about the revelation of feelings they would have kept secret under normal conditions. Real love philters are supposed to stimulate love in a person who is not to be won by other methods of courtship.

Many love potions contained under its mysterious disguise some ingredients that had a stimulating, even inflammatory, effect on the sexual organs: cannabis indica, cantharides, yohimbin, etc. The mandrake root which was a common ingredient in love philters in ancient times, is still used in some parts of France as a charm for that purpose. Many serious poisonings were produced by love potions of that stimulating kind, and some unexplained poisonings of historical persons may be explained by the consumption of a love philter of unknown combination. Today the same ingredients, in small doses, are used as aphrodisiacs for similar purposes.

Gold and Silver

Gold and silver played a great part in the medicine and folk medicine of past days. Perhaps it was the rarity of those precious metals which produced a suggestive influence on the human mind, or are there actual reasons for the widespread belief that the human body is affected by them? Gold is the common means of protection against any evil or mischief, against evil eye, erysipelas, wound fever, and jaundice. Indian writings, dating much further back than the Christian era, advise the beating of gold into thin leaves, heating it up several times and drinking it. In medieval times potable gold was a sovereign remedy for many different ailments. Roger Bacon, English philosopher and scientist of the thirteenth century, "Doctor admirabilis", was one of its foremost advocates. Curative properties always have been attributed to any substance which was difficult to obtain.

Paracelsus used potable gold as well as gold oil and gold essence for his famous and successful cures in the sixteenth century. With balsam containing gold he achieved much-spoken-of cures of wounds and of certain affections of the skin. Homeopathy is curing diseases with minute doses of gold and silver.

Modern medicine uses gold, silver and copper combinations for the treatment of tuberculosis, leprosy and other contagious diseases. Colloidal silver injected into the veins was for some time the up-to-date treatment of sepsis. Gold and gold compounds, often combined with the strangest rites, were early used for the treatment of wounds. Paracelsus's example inspired generations of physicians to go in for this treatment. The bacteria-destroying, disinfecting effects of gold have been proved in recent years. Gold compounds, even when diluted one in two million parts, obstruct the growth of the tuberculous bacillus.

An amulet or talisman made of gold or silver after being laid on wounds, was supposed to heal them quickly. Is this also pure superstition, connected with the glitter and the beautiful color of the metal? Surgical research work of the last few years has shown that placing thinly rolled silver leaves or gold leaves on wounds may prevent the incidence of suppuration and hasten the healing. In a Vienna hospital, perfectly pure silver that had been rolled until it was only a thin film, like transparent paper, was laid over the wound. It protected the wound from any impurities, killed bacteria, and checked the production of wound secretion. After a few days it was replaced by another silver membrane. This method was used mainly for scalds and burns and for sutures where the stitches can stay for a longer time without fear of suppuration.

The Middle Ages had not the definite conception of the effect of metals upon which the scientific work of our days is based. In a book on alchemy by an unknown author of the twelfth century, many pages are written about the valuable use of gold and silver in the treatment of diseases. He regards gold as the most precious metal of all, and calls it the red tincture which colors and transforms all bodies, and simultaneously a medicine which stimulates the body and keeps it fit, young and alive. Astrological observations considered gold a particularly efficient heart remedy.

The modern use of gold and silver in therapy is far away from any such conception. But the ideas and theoretical considerations which lead to a certain medical treatment, are not so important for its valuation as the success of a certain therapy. Thus we must bear in mind that even astrological, alchemistic and even purely superstitious theories were able eventually to bring about some effective and curative methods of treatment of diseases.

The Bezoar Stone

An amulet-stone to which classical and medieval medicine ascribed therapeutic effects, was the bezoar stone. Avenzoar cured his dysentery by wearing an emerald upon his belly, and recommended the bezoar stone highly. The word, bezoar, is derived from the Persian where it means "poison wind", and indeed bezoar stones were much in demand as antidotes. They consist of a vegetable nucleus around which several concretionary layers had been deposited while the stone was in an animal. Druggists sold bezoars in such quantities that an indignant surgeon protested that these specimens had never been inside any wild goat, antelope or ape. The oriental bezoar was the gallstone of the Persian bezoar or goat. Men carried the stones, in gold and silver cases, as amulets; during outbreaks of plague those who could not afford to buy one, rented it by the day. All kinds of diseases were treated with it, including skin diseases and leprosy. Sometimes bezoar stones were enclosed within drinking vessels, especially in those made of rhinoceros horn; or they were dipped into wine or brought into contact with food.

Blood

Blood, essence of life and life power, used to be administered for cures and this was frequently connected with the worship of idols. In Roman antiquity it was considered an efficient cure for epileptics to drink the freshly bubbling blood from a gladiator's wound. Also, the blood of a decapitated animal was consumed for various cures. Blood mixed with wine was supposed to be an efficient tonic. There was a cer-

tain medicine, spiritus anti-epilepticus, which was prepared from a healthy youth's blood; it was taken by blood-letting in the month of May.

Among the miraculous cures with blood, those of Sir Kenelm Digby are worthy of mention. This gentleman, who lived in Paris in the seventeenth century, had acquired his method of curing from a Carmelite monk who had visited the Indies, Persia and China. The method consisted in healing wounds, not by dressing them with salves, but merely by applying the salves to pieces of linen saturated with blood taken from the wound. The salves were compounded with sulphuric acid powder which was called sympathetic powder, from the sympathetic actions thus set up at a distance between the blood of the injured person and the wound from which it had issued. This process became a great fashion in France. When the Duke of Buckingham's secretary had been stabbed, Digby bathed his blood-stained garter in a basin containing a solution of his sympathetic powder. Within an hour the secretary felt "an agreeable coolness", and was soon completely cured.

Superstitious conceptions accompanied the use of blood of animals, e.g., whoever smears blood of a bat over his eyebrows, is able to see at night as well as by day; blood of chamois, drunk in raw condition, is a helpful remedy for dizziness and weakness; blood of beef is good for tuberculous persons; blood of swallows will cure eye diseases; blood of he-goats will cure impotence.

Other Superstitions

Superstition always dies hard and slowly. The evolution of the supernatural from the original depths of savage conceptions to the clear-seeing heights of modern science has been a slow process. Modern medicine has succeeded in discovering the useful essence of those methods: the principle of blood transfusion from a healthy person to a sick man. This technique in different forms, is used in increasing degree, and particularly during wartime it has proved a life-saving device in countless cases.

The internal consuming of liver, considered as a charm and connected with mysterious rites and habits, has always been well known to folk medicine. It was customary, for instance, to prescribe a mixture of liver of fox and weasel for diseases of the liver. This strange prescription was probably connected with the old belief that a sick organ might be cured by the same organ—a centuries-old opinion which was taken over by Paracelsus's medical system. In various countries of the globe liver has been considered an excellent remedy for scurvy. Surprisingly enough, in recent years, the dietetic treatment through doses of liver has been proved by scientific research to be an eminent and life-saving therapy, particularly in the therapy of fatal forms of anemia.

The drink of oblivion, nepenthe, played a rôle as far back as in Homer's narrations. Helen of Troy placed a certain drug in the wine-cup of Odysseus' son, Telemachos, in an effort to produce sleep and thus bring forgetfulness of the toils and the weariness and the sorrows of the day. This particular kind of drink was in use through all the following centuries; we find it again and again in myth and poetry, and its use is always surrounded with mysticism and sorcery.

We know today that the basic ingredient of those drinks of oblivion was a drug which is still in use for the production of forgetfulness of worries and pains today: opium. Paracelsus's successful cures were partly based on the prescription of opium. Its marvelous efficiency lent him the halo of a magician. The absence of opium and its constituents, morphine, codeine, etc., from modern medicine cannot even be imagined.

NOTES ON EARLY CANADIAN MEDICINE

THE HONOURABLE WILLIAM RENWICK RIDDELL
Toronto, Canada

First Use of Chloroform in Canada

The indefatigable archivist of the Province of Quebec, M. Pierre-George Roy, has in the July 1942 number of the official organ of his department, *Le Bulletin des Réscherches Historiques,* made a note of the first use of chloroform as an anaesthetic in surgery in Canada, which may be of interest.

The credit is given to Dr. E. D. Worthington who, in his *Reminiscences of Student Life and Practice,* claims the honor of having performed the first surgical operation in Canada with the aid of chloroform as an anaesthetic. This operation was made at Eaton Corner March 14, 1847, upon a man named Stone. Dr. Worthington amputated one leg of the patient in the presence of Dr. Rodgers of Eaton and Dr. Andrews of Cockshire. Stone did not lose consciousness, but he felt no pain.

In Quebec, chloroform was first used surgically as an anaesthetic on February 4, 1848. A French sailor from Havre had had both legs frozen. He was taken to the Marine Hospital and on February 4, 1848, Drs. Douglas and Sewell amputated both limbs. A medical man who assisted at the operations reported that Dr. Douglas did his work in one minute and forty seconds while Dr. Sewell, less speedy, took half an hour.

Introduction of Vaccination into Canada

It is a matter of common knowledge that the practice of vaccination, based on the epochal discovery of Dr. Jenner, was not speedily adopted in England, or, indeed, anywhere. The interesting story of its adoption by the Spanish naval authorities has been often told, and its introduction into Canada will not be without interest.

I propose in this article to avail myself of the description given in the August 1942 number of *Le Bulletin des Réscherches Historiques,* translating as literally as the idioms of the French and English permit.

An article with the heading, "La Premiere Loi en Faveur de la Vaccine", contains the following: "The

first law in favor of vaccination in Canada is dated March 25, 1815. The preamble of this law reads: 'Seeing that the use of vaccination is not sufficiently adopted in this Province [of course, Quebec] and it would be necessary to provide means whereby its use would become more general', the Government decided to use a sum of $1,000 to expand the use of vaccination; $400 in the District of Montreal, $300 in that of Quebec, and $100 in each of the Districts of Three Rivers and Gaspé. These sums should be employed in the following manner: Medical men are to be engaged in the spring of 1815 to give gratuitously the vaccine 'to everyone who presents himself'. These medical men, before setting themselves to the work, should, through the newspapers of Quebec and Montreal, give information when they will pass through a town or parish; they were also to take the names and address of every one treated and send them in to the Secretary of the Province before December 1, 1815. Moreover, $100 might be employed to print pamphlets explaining the need and value of vaccination."

The author, M. Pierre-George Roy, is not certain that all the directions of this legislation were scrupulously carried out; but he says with some pride, "In any case, our legislators were not tardy, vaccination existed in England only less than fifteen years before".

The Barber-Surgeon in Early Canada

The familiar barber's pole with its red and white stripes, symbolic of the bandage before and after the operation for blood-letting, so important in old time medicine, keeps in mind the early system of the barber being the surgeon of the medical profession.

The archivist of Quebec, in the latest issue of *Le Bulletin des Récherches Historiques*, gives an account of the barber-surgeon in early times. This I translate, in part, following the original as closely as the respective idioms of the two languages permit.

During the greater part of the French régime in Canada, the surgeons at Quebec were at the same time barbers. In 1658, Jean Madry, a surgeon at Quebec, obtained from Francois de Barnouin, First Barber and Surgeon of the King of France, patent as Master Surgeon Barber and also the right to establish his master and chief barber-surgeon in all places, towns, villages, boroughs, etc., in Nouvelle France, i.e., Canada. These letters patent, given to Jean Madry, were made known to the Soverign Council. This story is very interesting, showing the advance in status of the surgeon since 1658. Surgeons now amputate arms, legs, etc., but would consider it beneath them to cut beards and hair.

An instance may be given of an apprenticeship engagement as barber-surgeon in 1715 which is curious enough. A soldier, Francois Pampalon dit Labranche engaged his son, Joseph Pampalon, aged about fifteen years, to the Master-Surgeon Simon Soupiran, for the term of three years. The Surgeon, Soupiran, agreed to teach his apprentice what he should learn in surgery—even to permitting him to go to the hospital, when there were no pressing matters to attend to in his master's service. Soupiran further agreed to feed his apprentice during these three years and to furnish him with two pairs of French shoes each year.

"What a change," adds the archivist, "since 1658 in the profession of surgery, and, especially, in the apprenticeship articles of those who enter it."

JEROME CARDAN (1501-1576)

HERMAN GOODMAN
New York, N. Y.

Jerome Cardan, (1501-1576) of Pavia, (also known as Geronimo Cardano) became a Doctor of Philosophy at twenty-three years of age, and graduated in medicine the next year. He was professor of mathematics at Milan, and later professor of medicine at Pavia and at Bologna. His career was checkered, and as the illegitimate son of a scientist, Cardan had quite a way of life. His autobiography has been published in English, and several biographies have appeared. Of Cardan, it has been said —and he has said so himself—he was an astronomer, but also an astrologer; he was a physicist, but likewise an empiricist; he was a mathematician, but also a philosopher. His extraordinary genius made him a remarkable pathologist, yet he was a naturalist and author of a work on natural history, *De subtilitate rerum,* 1550. Cardan had remarkable insight into biological phenomena, and was evolutionary in tendency. He travelled extensively in France, Scotland, and Germany. He lived at Milan, Bologna, and Rome. He was a medical consultant for Princes and Popes, yet was excluded from the College of Physicians at Milan. He once gained a practice by curing the child of a Milanese senator. His contributions to medicine were many. For, example, he foresaw blood transfusion; he invented a system of reading and writing by touch, for the blind, not unlike modern Braille; he suggested a sign language for the deaf.

Cardan described flea-bite fever, or typhus, ten years before Fracastoro, usually accredited with the original observation. Despite all his superb advances, Cardan was the victim of ridiculous superstitions. He prepared *Metaposcopia* (1558) with eight hundred cuts illustrating human faces for astrological physiognomy, on the theory that furrows of the forehead were influenced by seven celestial bodies and that horoscopes might be drawn from such data. But he also published documents, among them treatises on arithmetic and algebra, the last including a famous solution of cubic equations, mainly stolen from Taraglia. He also wrote *De malo recentiorum medicorum medendi usu libellus* (Bad practice of healing among modern doctors), in 1536; and *De cyna radice, seu decoctis,* also, *Luisinus,* pp. 755-760, in which he held that guaiac was more effective than smilax, the Chinese root, in the treatment of syphilis. Thus comes the name and fame of Jerome Cardan into our list of notable contributors to the knowledge of the disease.

Henry Morley's *Life of Geronimo Cardano of Milan* is worth reading for further insight into this man of contradictions, student and laggard.

Editorials

Distribution of Medical Services

A rather startling report has come to our notice on the medical services in Mobile, Alabama. In this city the population has increased more than fifty percent in a few months. Living conditions are bad: the workers in the shipyards live in tents, roadside camps, and trailers. The restaurants are packed; frequently patrons will line up for a block or more waiting an hour to be served.

The city lists 124 physicians but many of these are too old, and about forty of them have joined the armed forces. There is only one active physician for each four thousand inhabitants. The doctors are overworked; they seldom make house calls. Maternity cases are sent home after three or four days; the hospitals are overcrowded.

Mobile, at best, has not an extremely healthy climate, as typhus and malaria are frequently encountered in the area. The strange part of the situation is that the local county medical society has put itself on record as being opposed to the importation of physicians to help care for the civilian population.

This seems an extremely shortsighted attitude. We believe that the physician should welcome the bringing in of their colleagues from other districts to help out during this crisis. We feel that the physician's first duty is to his patient and not to his pocketbook. We do not know what prompts the Mobile Physicians' Medical Society to take this stand but they should reconsider it on ethical and practical grounds.

Russian Military Medicine

The popular concept in this country is that Russia is a backward nation. This idea is based on what Russia was many years ago, but it would surprise many here to know how modern the Russians are in their medical services both in peace time and in war. We shall not discuss the progress they have made in their peace time handling of the sick and injured, but the recently released statistics of how well the Russians are doing in caring for their wounded in battle are most encouraging.

It is reported that seventy percent of the wounded are back in combat services. Only 1.5 percent of the Russian wounded have died. This is but a small fraction of their mortality of the wounded in the last World War, and also considerably better than the German or French figures of the last World War.

It may seem that the Russians have accomplished a miracle but they laid the ground work for their present day results some twenty years ago. Then they had only 20,000 physicians. In 1940 there were 160,000 physicians in Russia and they were graduating about 12,000 new physicians a year. Now they are graduating more than three times that number. In the invaded sections where some of their foremost medical colleges were situated, they moved their entire medical schools including students, laboratory equipment, books, and teachers back into the Urals, hundreds of miles away, where they continued their training without much interruption.

One of the most helpful factors in the Russian setup is the socalled *Feldschers*. This is a group of about four hundred thousand men and women who are not graduate physicians but who have had considerably more practical training than our advanced first aid groups—training in practical nursing, care and transportation of the wounded, and those who have worked in close cooperation with physicians. They have enabled the Russians to get in their wounded early and give them first aid and care which is so essential, for the mortality ratio always goes down in direct ratio to the speed with which the wounded receive their first treatment.

The Russians use the sulfa drugs as much as we do. They also make wide use of serums and transfusions. We believe that the Russian technique is superior to our own in many ways. They have pioneered in this field and have invented many methods of preserving blood which have proved highly successful, and we would do well to take advantage of their technique.

Horse Meat and Coffee

We think that Mayor LaGuardia is one of the finest mayors New York City has ever had—dynamic, sincere, and able—but we take violent issue with him on his culinary admonitions. First, there is the question of coffee. He advocated saving the grounds and making some more. This procedure finds no favor in any cookbook that we have been able to find nor does it meet with the approval of any dietitian or gourmet that we have talked to recently. This concoction is neither appetizing, wholesome, or in any way fit for human consumption. We would be tempted to put this custom on the level of using old cigar or cigarette butts. Luckily, an extensive inquiry of our field workers fails to find LaGuardia's second-hand coffee recipe adopted by any considerable number of the population in any of the five boroughs, although some restaurant owners have lost most of their clientele, we surmise, from putting the LaGuardia process into practice in order to economize.

Then there is the question of horse meat. LaGuardia's reaction to the vending of horse meat strikes us as a rather violent one—out of keeping with the stimulus that the proposal evoked. There is nothing wrong with horse meat. It is edible, tasty, and highly nutri-

tious. The only difference between horse meat and the meat of other vegetarian mammals is that there is no fat in solid form, as the fatty substance in a horse is freely circulating in the tissues.

Horse meat is a staple article of diet in many European countries, and in the shops that sell this article in Europe, they have the head of a horse over the front of the store but they do not have a painting of a full-sized steed that the Mayor wants. Of course, the Mayor does not specify whether the horse that should be painted in front of the shop be a race horse, saw horse, draft horse, or a Shetland pony but all these details could be worked out. For the sake of the public we would suggest that there also be a large placard in front of these stores, in addition to the painting of the full-sized horse, informing the public that this shop was not the entrance to a race track, as we have a suspicion that the Mayor is opposed to any form of gambling, although he has not as yet made any raids on Wall Street.

The only quarrel that we have with the Mayor is that he advocates the utilization of a nauseous concoction without any nutritious value on the one hand, and on the other hand wishes to deprive the public of the clean, wholesome meat of the horse which is so highly venerated by those who have utilized it in their diet. We trust that in the future the Mayor will discuss with us any dietetic problems that may arise in New York and vicinity before issuing further pronouncements with which we take issue.

Meningitis and War

Meningococcic meningitis is on the upswing again. In 1942 about three thousand cases have appeared in the United States, compared to 2,072 in 1941, and 1,631 in 1940. Recently Colonel William B. Borden and Captain Paul S. Strong, of the Army Medical Corps, reported that "sporadic cases have now begun to appear in the Army camps in this country; and, in a few of the larger cities, the number of cases . . . approaches epidemic proportions."

Cerebrospinal meningitis flares up at irregular intervals, especially during wars. In World War I the disease was well known in Army camps in the United States, France and Britain. The incidence of the disease has shown a marked rise in England, partly as a result of overcrowding in the air-raid shelters in large cities during the bombings of 1940. Cerebrospinal meningitis is normally a disease of rather low frequency in England, but in 1940 the number of cases of this disease was officially estimated at 12,500, or about eight times the number recorded in 1939. Chemotherapy lowered the case fatality rate, but it still remained high, and the number of deaths in England during 1940 exceeded 2,500. Since children are the chief victims, their evacuation from endangered British cities in that year undoubtedly saved many lives.

Reports from other European countries have also shown that an increase in the incidence of meningococcic meningitis associated with the war.

The figures for Canada in 1940 were more than double those for the two preceding years. Donovan and Bowman, Winnipeg, Manitoba, found more cases in rural than in urban districts. In their reports the following facts stand out:

Almost one hundred percent of the patients had been exposed to mosquitoes; many cases of cerebrospinal meningitis were first diagnosed as sun and heat stroke: owing to the war, many persons were overworked. No significant information as to the occupation of the patients was elicited, except the one point that outdoor workers predominated. The fatality rate of this epidemic was 15.3 percent. The dominant subjective symptoms in the Canadian epidemic were headache in 96.3 percent of the cases, disturbance of sleep in 71.3 percent, and spinal pain in 62.3 percent.

During a bad epidemic in the United States in 1928, the mortality was so high that, according to *Time*, many physicians lost faith in the serums which were then widely used, but about 1935 improved serums and antitoxins were developed. The sulfa drugs have also reduced meningitis mortality. In World War I, thirty-nine percent of the United States' soldiers who contracted cerebrospinal meningitis, died of it. Using both the improved serum and sulfa compounds in the recent Virginia outbreak, Borden and Strong were able to hold the mortality to five percent.

Food Rationing and Vitamins

With the impending food rationing and the shortage of certain foods for the civilian population, it is highly important that physicians and public health officials realize that this may cause an imbalance in the vitamin intake.

Forty percent of our vitamin B_1 is derived from our meat diet, and one can realize how, if the meat diet is curtailed, vitamin B_1 deficiency which has been widely prevalent in this country might increase. The same holds true for the possible curtailment of citrus fruits, tomatoes, and other fruits and vegetables which contain important quantities of vitamin C. The same can be said in relation to the shifting of our diet of the A and D vitamins.

In order to prevent shortages of vitamins in the diet, as well as deficiencies of essential minerals and salts, the changes in our diet should be watched and the deficient vitamins replaced. The men in our armed forces have their diets so arranged as to prevent these deficiencies. They receive ample supplies of proteins, carbohydrates, fats, vitamins, and the other essential in-

gredients of a balanced diet; but who is going to look after a proper balance for the civilian population?

We feel that every physician should give this matter careful thought and see what can be done to maintain a proper vitamin balance, not only among his patients but in the community. This can be done by word of mouth and by publicity through various channels.

Working with Magnesium

Compared with arsenic or lead, the toxicity of magnesium is low, but with the increased use of magnesium in war industry the hazards from working with magnesium, previously almost unknown, have become much more prevalent. According to a report by Dr. Carey P. McCord, of the medical department of the Chrysler Corporation, a new kind of gas gangrene threatens workers in war industries unless care is taken to prevent magnesium splinters and magnesium dust from entering open cuts and wounds. The condition is similar to bacterial gas gangrene, but is caused by magnesium instead of germs. Many cases of this kind of gas gangrene occurred in Germany in 1939. In Detroit, small particles of magnesium were introduced into experimental wounds in rats which led to the formation of hydrogen gas in the body. The removal of all magnesium particles from wounds is essential, since injuries resulting from failure to do this are much more serious than ordinary industrial injuries.

According to a report in *Light Metals,* injuries caused by magnesium and other light metals tend to be more severe than those resulting from heavy metals. There are two well defined types of injuries from light metals. In the first, a visible particle of metal (magnesium, etc.) is found, and if the injury is not treated, in a few days a rapid and progressive inflammation occurs at the site of the injury and the neighboring lymphatic system. Vacuole formation occurs in the tissues. In the second type, the causative agent is magnesium dust, or other light metal dust. The wound heals rapidly, but a painful granulomatous infiltration may persist for months, accompanied by acute symptoms of inflammation.

Another condition, produced by working with magnesium, is magnesium metal fume fever. This is of short duration and has no after-effects. It follows exposure to recently produced magnesium oxide and may be expected when magnesium is in molten form. Chills and fever usually occur after the worker has left work and last for an hour or two. The body aches all over as in grippe. Weakness and lassitude are common complaints, and nausea and vomiting may occur. Magnesium metal fume fever rarely lasts longer than one or two weeks. The most important prevention is control of the toxic fumes at their source.

A third form of magnesium poisoning, although less well established, represents a spastic gastroenteritis, characterized by abdominal pain, a sensation of pressure, loss of appetite, constipation and loss of weight, and sometimes cystitis.

The chief practical danger from magnesium is its inflammability and explosibility when in the form of fine dust. Protection calls for the wearing of flame proof clothing which should be kept free from grease and oil, because the danger of such dust is increased through the presence of oils.

News Items

Van Meter Prize Award.—It is announced that the Van Meter Prize of the American Association for the Study of Goiter has been awarded to Walter Mann, research fellow in radiology, and Charles P. Leblond, of the University of Rochester School of Medicine and Dentistry, New York, for their essay on "Chemical Transformation of the Iodine Fixed by the Thyroid Gland."

Audubon Medical Society.—At the recent annual meeting of this Society, Dr. William Z. Jerome was elected president and other officers were elected as follows: Dr. Elmer W. Smith, first vice-president; Dr. Angelo A. Zingaro, second vice-president; Dr. E. Allen Jennings, secretary; Dr. Sydney J. Furst, treasurer.

New Psychiatric Clinic at Stanford.—A Psychiatric Clinic designed to rehabilitate and reorient borderline cases of feminine delinquency has been established by the U. S. Public Health Service and the San Francisco Department of Public Health at Stanford University. Dr. Ernest G. Lion, instructor in psychiatry at the School of Medicine, has been appointed director of the clinic which is said to be the first of its kind in the United States.

Social Hygiene and the War Effort.—At a meeting of the American Association of Medical Social Workers, held in New York on Thursday evening, January 28th, the program consisted of a panel discussion of social hygiene in the war effort. Lieutenant Commander Bernard L. Toothaker Medical Corps, U. S. N. R., representing the Venereal Disease Control Officer for the Third Naval District, was the principal speaker. Others included Miss Kathyrn Loughrey, consultant to the nursing staff on social hygiene; and Dr. Herman Goodman, of the Bureau of Social Hygiene.

Hermann M. Biggs Lecture.—The Hermann M. Biggs Memorial Lecture, which is held annually in Hosack Hall at The New York Academy of Medicine, under the auspices of the Committee on Public Health Relations, will be delivered this year on Thursday, April 1st, at 8:30 p.m. by Lieutenant Colonel Paul F. Russell, Medical Department, Army of United States, Chief, Tropical Disease and Malaria Control Section, Division of Preventive Medicine, Office of The Surgeon General. The subject of the lecture will be "Malaria and Its Influence on World Health." This lecture is open to the general public.

Communicable Disease Control.—At a meeting held on January 27th, under the auspices of the Bureau of Social Hygiene of the Department of Health of the city of New York, an outline formula was presented for the teaching of communicable disease control methods, with special emphasis on syphilis and gonorrhea.

Course in Kenny Treatment at New York University.—A series of courses in the Kenny method of treating anterior poliomyelitis was opened on February 3d at New York University. These courses will be conducted at the School of Education and College of Medicine, and nearby hospitals will cooperate by supplying the necessary clinical materials and facilities. A grant from the National Foundation for Infantile Paralysis made this work possible.

Symposium on Hypertension.—At a stated meeting of the New York Academy of Medicine, held Thursday evening, February 4th, the scientific program consisted of a symposium on hypertension. "Is Essential Hypertension of Renal Origin?" was the topic discussed by Dr. Irvine H. Page, director of clinic research, Lilly Clinic, Indianapolis City Hospital, and the "Value of Surgery in the Treatment of Hypertension" was discussed by Dr. R. H. Smithwick, instructor in surgery, Harvard Medical School.

Personal.—Dr. Perrin H. Long, professor of preventive medicine at the Johns Hopkins Medical School, has received the Southern Medical Association's award for his studies on the sulfonamides. This award is made yearly by the Association for original work done by one of its members.

Dr. Donald D. Van Slyke, of the Rockefeller Institute for Medical Research, has been elected an honorary member of the British Physiological Society.

Dr. Foster Kennedy on January 26th, delivered the first lecture in a postgraduate course on war medicine which is being given in Utica, N. Y., under the auspices of the State Medical Society and the State Department of Health. His subject was Nervous Conditions Associated with Warfare.

Dr. Eugene L. Opie who recently returned to active duty at Cornell University Medical College in the department of pathology, is also devoting part time to the Henry Phipps Institute of Philadelphia as temporary director of the laboratories.

Dr. William B. Herms, professor of parasitology and head of the Division of Entomology and Parasitology of the University of California, has been called to active duty by the War Department as a lieutenant colonel in the Sanitary Corps. He has been appointed an instructor in tropical medicine at the Army Medical Field Service School, Carlisle Barracks, Pa.

Dr. William H. Taliaferro, dean of the Division of Biological Sciences of the University of Chicago, delivered the sixth Christian Fenger Lecture of the Institute of Medicine of Chicago and the Chicago Pathological Society on February 8th. His subject was "Antigen-Antibody Mechanisms in Immunity to Matazoan Parasites."

Dr. Fuller Albright, assistant professor of medicine at Harvard Medical School, delivered the fourth Harvey Society Lecture at the New York Academy of Medicine, on January 21st. His subject was "Studies on the Pathological Physiology of Cushing's Syndrome."

Johns Hopkins Medical History Club.—The second meeting of this club, for this year, was held on Monday, February 1st, in the Institute of the History of Medicine, Baltimore. Dr. E. B. Krumbhaar, of the University of Pennsylvania, read a paper on Superstition and Medical Progress, and Dr. George W. Corner, of the department of embryology of the Carnegie Institution of Washington, Baltimore, read a paper on the History of our Knowledge of the Lymphatic Vessels.

Friday Afternoon Lectures.—During the month of March the following Friday Afternoon Lectures will be delivered at the New York Academy of Medicine:

March 5: The role of the RH factor in erythroblastosis, transfusion accidents, and its importance to the obstetrician, by Dr. Philip Levine, bacteriologist to the Newark Beth Israel Hospital, Newark, N. J.

March 12: Toxemias of pregnancy, by Dr. Albert H. Aldridge, chief surgeon, Women's Hospital, New York.

March 19th: Brucellosis: diagnosis, differential diagnosis and treatment, by Lieutenant Commander Harold J. Harris, Medical Corps, U. S. N. R.

March 26th: Rheumatoid arthritis and its treatment, including gold therapy, by Dr. M. Henry Dawson, associate professor of clinical medicine, College of Physicians and Surgeons, Columbia University.

Medicine in War.—At the annual health day, held in Newark, N. J., on Tuesday, January 26th, the subject for discussion was "Medicine in War." The program was sponsored by the Woman's Auxiliary of the Essex County Medical Society and The Contemporary, and the speakers were Captain Stuart Z. Hawkes and Dr. J. Wallace Hurff, president-elect of Essex County Medical Society. Captain Hawkes, who is in the Army Medical Corps, discussed the work being done in preventing disease and the new treatments which are being used, particularly in the Air Corps. Dr. Hurff discussed the medical problems of civilians resulting from the increasing shortage of physicians to care for them.

Faculty Changes at Harvard.—Dr. Joseph S. Lichty, of Shaker Heights, Ohio, has been appointed assistant dean of the faculty of medicine at Harvard University and assistant professor of medical administration. Dr. Franklin F. Snyder, of Chicago, has been appointed associate professor of anatomy and obstetrics at the Medical School. Dr. Frederick J. Stare, of the University of Wisconsin, has been appointed assistant professor of nutrition and will work both in the laboratory and in the field in connection with the Medical School and the School of Public Health. Dr. Henry P. Treffers has been named to the newly established position of assistant professor of comparative pathology and biological chemistry.

New York Cardiological Society.—At a regular meeting of the society held at the New York Academy of Medicine, on Wednesday evening, January 27th, the following papers were presented: History of auscultation—demonstration of instruments, by Dr. Philip Reichert; Apical sounds and murmurs in aortic regurgitation, by Dr. Aldo Luisada; Diagnostic significance of certain murmurs, by Dr. Paul Borchardt; Graphic study of auscultatory blood pressure measurement, by Dr. F. M. Groedel and Dr. Max Miller. The officers of the society are: President, Dr. Walter Bensel; vice-president, Dr. Franz M. Groedel; secretary, Dr. E. Secondari; treasurer, Dr. Philip Reichert.

Book Reviews

Rationing of Doctors

When Doctors Are Rationed. By DWIGHT ANDERSON, director of public relations, Medical Society of the State of New York, and MARGARET BAYLOUS, therapist, Charleston General Hospital, Charleston, West Virginia. New York: Coward-McCann, Inc., 1942. Pp. 255. Price $2.00.

This is a book intended for the layman, and the title is somewhat cryptic and inadequate. It would be well for the medical man to read it just to find out what the laity is being told about him and his profession.

It is a good book and a practical one and we believe that the layman reading it will have a more comprehensive, if not a complete picture, of how the physician fits into the entire scheme of things, and is not just fulfilling a rôle of convenience for the individual patient who comes for help for a sprained ankle or an inflamed appendix or any of the other ailments of mind or body that the patient may be making use of at the moment.

The book covers a rather wide scope of how many doctors there are available for the civilian population, the Navy, the Army, the Marines, and the WAACS, and the shortage of physicians in boom towns. It also warns of the necessity of avoiding quacks and fakes and talks about medical schools, medical societies, specialists, the bedside manner, hospitals, about "home remedies", how a patient should treat the physician and what a doctor can actually do, and then tells how a doctor should be chosen. This latter chapter is somewhat didactic and we doubt very much if many patients will look up a physician's Alma Mater or what medical societies he has managed to join. We are quite certain that the selection will continue in the same old way and be made on the appearance and attitude and general confidence the physician inspires in the patient, or even perhaps on the word of some previous patient who had been rescued at the brink of death by the physician who had advised rest and perhaps a laxative.

Dr. Etten has written an introduction and he seems to like the book very much from what he says. It is a comprehensive book and we hope a lot of people will read it.

Story of Psychiatry

Doctors of the Mind. The Story of Psychiatry. By MARIE BEYNON RAY. Illustrations by Ruth Ray. Boston: Little, Brown and Company, 1942. Pp. 335. Price $3.00.

This book, written by a lay woman on a highly scientific subject, psychiatry, reminds one of the books by Paul de Kruif which, brilliantly written, dramatized subjects which were usually considered dry and tough. She has covered broadly the development of the science of psychiatry in a readable and, one might say, dramatic—if it did not have the wrong implication—fashion.

It is a book that attempts to cover the study of the mind and the emotions from the ape to the modern method of shock treatment. It covers such a wide subject it is natural that there are certain hiatuses, but she has ably covered the high spots and gives a broad general picture of how man has been groping to find out how his own mind and emotions operate and what psychiatry is trying to do to help get those whose minds are disordered back to a more efficient functioning. Of course, a book written today, which attempts to give a picture of where psychiatry stands today, is likely to overemphasize the procedures of today, and to evaluate less properly what has gone before. The same type of book written twenty-five years from now will probably give much less space to the most modern procedures of today than this one does, for the reason that these procedures, while they seem all important now, will probably fall into their proper place and evaluation, as new methods are devised.

Not all psychiatrists will agree with all the deductions, for some schools receive scant attention whereas others are more extensively gone into; nevertheless, we feel that as a stimulus and for a rapid survey the book is well worth reading.

Fractures and Dislocations

Fractures and Dislocations for Practitioners. By EDWIN O GECKELER, M.D., Fellow of the American College of Surgeons, and Diplomate of the American Board of Orthopaedic Surgery. Second edition. A William Wood book. Baltimore: The Williams and Wilkins Company, 1942. Pp 314. Price $4.00.

All practicing physicians should be well informed about the simple basic principles of the early treatment of fractures, if for no other reason than the increasing frequency of highway accidents all over the country. Geckeler's book offers a comprehensive, well illustrated guide to the management of bone and joint injuries. Part One is devoted to fractures and its consecutive chapters present, first, general considerations, immediate treatment, immobilization, traction, operations and follow-up treatment, and then twelve special chapters in which etiology, examination, complications, prognosis and treatment of all bony fractures are concisely described. Part Two presents, after general considerations, a similar synopsis of all dislocations. The essential details of anatomy and mechanical principles are further clarified by 267 photographs and diagrams. This well written, eminently practical volume should be of invaluable service to all general practitioners.

Oral Pathology

Pathology of the Oral Cavity. By LESTER RICHARD CAHN, D.D.S., associate professor of dentistry (oral pathology), Columbia University. A William Wood Book. Baltimore: The Williams & Wilkins Company, 1941. Pp. 240. Price $5.50.

This is a sort of *vade mecum* of oral conditions concerning which every practitioner of medicine or dentistry must have diagnostic knowledge. The first four chapters are of more immediate concern to the dentist, although chapter I, which deals with the principles of inflammation, can indeed be carefully read by everyone. It is very well written. Succeeding chapters deal with osteomyelitis, pyorrhea, cysts of the jaws, and tumors. Chapter 10 gives an excellent outline of the general histology and pathology of the soft tissues of the mouth. Then follow chapters on gingivitis and stomatitis, ulcers, lesions associated with blood dyscrasias, with endocrine dysfunction, and with avitaminosis. Affections of the tongue require a special chapter. For those who prefer "visual education" to text descriptions, the black and white figures are very helpful. For example: the smooth atrophic tongue of per-

nicious anemia, the gingival lesions of purpura, hypertrophy of the gum in acute leukemia, pregnancy gingivitis, pregnancy tumor, the gums in scurvy, geographic tongue, fissured tongue, hairy tongue, leukoplakia of the cheek and tongue (colored), hyperkeratosis, ranula, (colored) fibroma, hematoma, papilloma, mixed tumor, melanoma of the gum (colored) and many microscopic studies of all of these conditions, each and every one of diagnostic aid to the clinician.

References at the end of each chapter will help the advanced student to find in the literature more detailed information than can be brought within the confines of a handbook of this size.

Dr. Cahn has performed a distinct service for the profession, and, of course, indirectly for the patient. A word of praise must be said also for the publishers who have spared no expense in paper, printing and general format, and what is also important, have kept "the price" within very reasonable bounds.

Postgraduate Work in Europe

American Surgeon Abroad. By RICHARD A. LEONARDO, M.D., Ch.M., F.I.C.S. With twenty plates. New York: The Froben Press, 1942. Pp. 235. Price $2.50.

This is a record of a series of visits to European clinics in the period following the first World War by a second generation American. The author's frank impressions of the recent status of postgraduate medical teaching in Italy, Austria and Hungary are presented in detail and form an interesting historical record, for many of the teachers have been by this time "eliminated". There is also a good account of some of the postgraduate work in Germany, France and England during the same period. Portraits of some of the outstanding surgeons and of historically interesting spots add to the picturesqueness of this personal narrative.

Deformity in Childhood

A Primer on the Prevention of Deformity in Childhood. By RICHARD BEVERLY RANEY, B.A., M.D., associate in orthopaedic surgery, Duke University School of Medicine, Durham, N. C. In collaboration with ALFRED RIVES SHANDS, JR., B.A., M.D., medical director, Alfred I. duPont Institute of The Nemours Foundation, Wilmington, Delaware. Illustrated by JACK WILSON. Elyria, Ohio: National Society for Crippled Children, Inc., 1941. Pp. 188. Price $1.00.

In no field of medicine is prevention more important than in the crippling diseases of joints and bones and the neuromuscular affections of childhood. Observance of simple preventive measures will forestall serious deformities. This volume answers many questions regarding deformity and disability. It presents the type of treatment indicated at home to prevent dire consequences. Since deformities are a result of bone or soft tissue changes due to disease, injury, or maldevelopment, they may be prevented in either of two ways; by forestalling the causative affection, or by forestalling the tissue changes which the affection tends to produce. In the first chapter, the common affections of childhood which may cause deformity are defined, their causes enumerated and prevention of the affections formulated. In subsequent chapters, the most important deformities of childhood are described in regional order, their common causes listed, and their prevention discussed in practical terms.

This primer has been written plainly and simply for those who make it possible for the orthopedic surgeon to carry on his work of preventing and correcting deformities. Common terms are used rather than technical orthopedic nomenclature. As this has not always been possible without sacrifice of accuracy, a glossary of common orthopedic terms has been combined with the index into a single list for alphabetical reference. The book is invaluable for the general practitioner.

Medicine in Tropical America

Imbassadors in White. The story of American tropical medicine. By CHARLES MORROW WILSON. New York: Henry Holt and Company, Inc., 1942. Pp. 372. Price $3.50.

This is a book abundantly rich in facts and figures, —most of them scarcely known even to people who are bound to work with the basic necessities. The story of medicine in the American tropics is presented by an experienced author who knows how to find facts as a reporter, and who also knows how to write with scientific reticence. Carlos J. Finlay, Walter Reed, William Gorgas, Jesse Lazear, Hideyo Noguchi are some of the famous pioneers whose energy and knowledge made decisive contributions to today's conception and conquest of nation-destroying diseases. All matters concerning tropical America are of great interest today, probably more than at any time in our history. Charles Morrow Wilson's tale of the victories, the defeats and the impenetrable mysteries in the course of the effort to free the American tropics from disease, is a thrilling addition to recent medicohistorical and geomedical literature.

The Old and the New

An Old Doctor of the New School. By JAMES C. WOOD, M.D. Illustrated with photographs. Caldwell, Idaho: The Caxton Printers, Ltd., 1942. Pp. 398. Price $3.50.

This is a charming book and it reveals a charming personality. It shows the development of horse-and-buggy medicine to modern scientific medicine within an individual career. Dr. Wood, in 1877, began the study of medicine in Monroe, Michigan, with a seemingly inappropriate background. But after he was graduated from the University of Michigan, he became one of the most successful physicians; in 1886 he was made full professor of obstetrics and gynecology at the University of Michigan. Later he went to Cleveland, Ohio, where he practiced for the remainder of his career. The unusual features of Wood's career and ideas are distinctly expressed in the particular combination of experienced surgeon and convinced homeopath. This book of interesting and frequently highly amusing reminiscences is dedicated to the author's grandson, and from this foreword alone we can see his superior modesty, the basis of his philosophy. The book is full of concentrated experience, starting from the simple solution of the young doctor's start: "he must meet people if he is going to have people for patients"—to the twinkle-eyed advice to mothers telling them why they should nurse their babies: 1, it is less expensive; 2, it keeps better over the week end, and 3, the cat can't get at it. The instructive chapter on Homeopathy in Gynecology and Surgery, with its basic stand that Wood in his medication of surgical cases always used his homeopathy whenever possible, reminds one vividly of the ideas of the famous Berlin surgeon, Bier. All in all, every doctor, whether homeopath or allopath, will derive intense pleasure and high advantage from the lecture of Wood's multiple-minded book.

Critique

Quotation from Dr. Cushing "It may be, of course, that the people at large do not evaluate for themselves. While our profession studiously employs the methods of science to catch the truth in medicine, new sects arise and the therapeutic doctrines of the Abramite spread over the land. While Saurian eggs are being discovered in Manchuria, our State legislatures introduce, even pass, bills prohibiting the teaching of evolution. While electrophysicists are perfecting the miracle of wireless communication, the lecture halls are filled with educated persons whose curiosity is more aroused by a discussion of ectoplasm. While the astronomer with near exactitude announces a solar eclipse, the Seventh Day Adventists with no less assurance predict the end of the world. While sanitarians are conquering pestilence, the antivivisection and antivaccination societies receive large gifts wherewith to oppose the very measures which make such things possible. While nations are stewing in their post-bellum troubles, jazz, the movie, and *thé dansant* engage the thoughts of the people. The only common ground on which the interests of all appear to meet is the crossword puzzle. What we need perhaps as much as anything in our institutions of higher learning is the scientific study of human reactions and behavior."

Living Sans Stomach In the *British Medical Journal* for December 1, 1928, (p. 979) E. R. Flint reported on "a case of complete gastrectomy for carcinoma of the stomach", eighteen months after operation, without sign of recurrence or even of digestive inconvenience, so long as the patient used only small quantities of food taken frequently. If Flint could have just gone a little further and invented an operation to enable the patient to go foodless it would have had great utility in Hitler's Europe.

Just Before the Operation In 1821, the following preoperative treatment was administered to a patient at the Massachusetts General Hospital and Medical College: On the day following admission he was given one ounce of magnesium sulphate and a mess of senna. The next day he got a warm bath and then at 2 p.m. began to take tartar emetic every ten minutes until the operation began. At 3 p.m. he was bled sixteen ounces without producing faintness. Then the operation was started under the most favorable possible circumstances. It continued for an hour, then the case was given up as hopeless and the doctor went home disgusted. But the patient lived. Not only that, he survived this drastic treatment to die forty years later of something else!

Antivivisection Shall pneumonia and cancer be conquered by animal experimentation or not? Man butchers, hunts, tortures, and mutilates animals for pure sport. He does not exempt himself either in surgery or in research investigation when he becomes the subject of his own experimentation. Maurice C. Hall himself took carbon tetrachloride to see whether it injured him before he tried it on other human beings who were afflicted with hookworm; before that, however, he had worked on dogs because his primary desire was to rid dogs of torturing worms. Copeman could never have found the bacterial cause of dog distemper had he been unable to work on dogs, yet he thus saved uncounted canines which would otherwise have been doomed. The same holds for the fatal malignant jaundice spread by the bite of dog ticks, until Nuttall found a preventive. Societies for animal welfare should really finance such investigations as these if their leadership was rational. Yet they irrationally advance sums of money to be used for opposing the very research upon which the future health of all animals, human and nonhuman, depends. Years ago Johns Hopkins instituted a veterinary surgical course which enabled veterinarians to learn how to save animals by surgery in cases where they had been doomed. This is good work for animal crusaders to support; let them finance it.

Value of Research Speaking in Morgantown, W. Va., in late 1928, Dr. A. F. Woods, then director of scientific work of the Department of Agriculture, said that the actual money returns from research in the State experiment stations and land-grant colleges amounted in one year to more than the entire sum that all the colleges had cost from their inception. O. E. Reed then, and now, Chief of the Bureau of Dairy Industry, wrote in 1928 that a cow producing one hundred pounds of butterfat per year returned only $14 over the cost of her feed, while one producing five hundred pounds returned $178. Hence, one good cow would provide as much income as thirteen poor ones. One good cow supplies five hundred pounds of butterfat for market but thirteen cows yielding an equivalent income can supply only 1,300 pounds. Research which has enabled dairymen to have good cows has tremendously increased their income.

Self-Selection of Diet One of the earliest pieces of work published by Dr. Clara M. Davis on self-selection of diet by newly weaned infants appeared in the *American Journal of the Diseases of Children* for October 1928 (p. 651). Have doctors given sufficient attention to the truly remarkable work of this truly remarkable investigator? Her naturally fed infants were far better and healthier in every way than the poor kids condemned to strict diets by pediatricians and nutrition experts who pretended to know more about what babies should eat than the babies themselves.

Cruel Humans We often read about the cruelty of white men to the black slaves they brought to serve them. In Carnot's *Adventures of an African Slaver,* published early in the nineteenth century, we read that extreme cruelty and treachery on the part of blacks to and among themselves was part of their regular routine. Women were especially cruel during murderous orgies and treacherous in wheedling men into the slaver's hands for a few beads. Their native religions were abominably cruel and their lives hard. This offers no condonation for what the whites did to the Negroes, but indicates that naked cruelty was nothing new to them. THE CRITIC

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FEBRUARY 1943

Medicolegal Notes

Proven Circumstances May Outweigh Expert Opinion

Although the opinions of physicians skilled in their profession will be given great weight by the courts, the Kentucky Court of Appeals says, in a workmen's compensation proceeding, Consolidation Coal Co., vs. Marcum's Adm'r., 289 Ky. 220, 158 S. W. 2d 150, it also holds that neither the medical nor any other of the sciences has yet reached the stage of infallibility And, where circumstances are shown which, if true, would tend to cast some doubt as to the correctness of the opinion of the experts, the question becomes one for the workmen's compensation board. Opinion or expert evidence is neither conclusive nor controlling as against evidence of facts.

In this case the doctors disposed the disability involved as hardening of the arteries and high blood pressure of long standing, diseases which become progressively worse. The sequence of events showed that before the day of the injury for a long period of time the employee was able-bodied, doing an average day's work loading coal, but immediately became incapacitated from any gainful employment until his death about three and a half years later.

"Treatment" In Any Manner

Reading the various sections of the Illinois Medical Practice Act which provides for punishment for doing certain things forbidden by the act, together with the fact that the act authorizes and directs the issuance of license to practice certain branches of treatment, the Illinois Supreme Court, People vs. Friedman, 374 Ill. 212, 29 N. E. 2d 89, holds that the language "the treatment of human ailments in any manner" obviously requires a valid license to practice the treatment of human ailments in the manner in which such treatment was practiced. To hold otherwise, the court said, would result in the then necessary construction that one who had a license to practice chiropody could not be punished for practicing surgery, or the most intricate branches of medical treatment. There the prohibitive terms of the statute are in the disjunctive, the general rule is applied that where a statute makes it impossible to do particular things specified, or another thing or another, the offense is committed by one who does any one or more, or all of them; and a single isolated instance of treatment would be sufficient proof that medicine was being practiced within the meaning of the act.

Determining "Bona Fide Medical Practice"

What constitutes bona fide medical practice must be determined upon consideration of the evidence and attending circumstances (Linder vs. United States, 268 U. S. 5, 18, 39 A. L. R. 229). In a prosecution of a physician for violation of the Harrison Act the evidence was such that the jury could properly conclude that the curbstone sales of morphine charged in the indictment were not made in connection with a bona fide practice of medicine as contended by the defendant, but in violation of the statutory provisions sale of narcotic drugs except by orders made on blank forms issued by the Commissioner of Internal Revenue. The evidence was held to make a case for the jury and the trial court's refusal to direct a verdict for the defendant was held proper. Moore vs. United States, Fifth Circuit Court of Appeals, affirming conviction in the Federal District Court for Northern Georgia.

When Complaints of Pain are Admissible

A physician called to treat an injury when sworn as a witness in an action to recover damages for it, may state how the patient described the pain from which he or she was suffering. This does not conflict with the rule given effect in many cases that when a physician is not called in to aid or give medical treatment, but merely makes an examination for the purpose of testifying, the testimony of the doctor that the patient complained of pain is not admissible. McDuffie vs. Root, 300 Mich. 286, 1 N. W. 2d 544.

This case was held to fall under the first above stated rule. Although defendant claimed that the purpose of the doctor's examination of the plaintiff was to prepare the doctor to testify, the doctor expressly testified that he did not make the examination with any intention of testifying but for the plaintiff and that: "The reason I do any examination is for the purpose of determining what treatment can be given." Taking this testimony as true, as the trial court must have done when admitting the evidence, the case came under the rule as stated.

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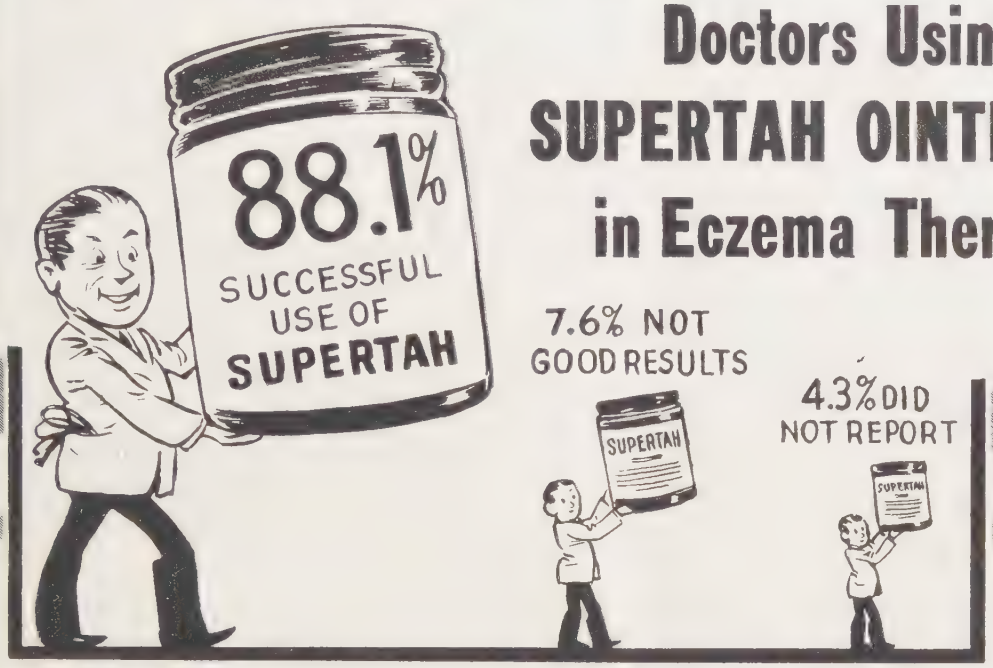

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*These reports of physicians vigorously confirm the clinical findings of the dermatologist, J. H. Swartz, M.D., and his co-worker, M. G. Reilly, R.N., who say of SUPERTAH Ointment: "It has proven as valuable as the black coal tar preparation and the advantage of the diminution of the black color is perfectly obvious. It does not stain the skin or clothing, nor does it burn or irritate the skin."**

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*Swartz & Reilly, "*Diagnosis and Treatment of Skin Diseases*," p. 66

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Award for Research on Alcoholism

The Research Council on Problems of Alcohol announces a thousand dollar award for outstanding research on alcoholism during 1943. Any scientist in the United States, Canada or Latin America is eligible for the award.

The research for which the award will be granted must contribute new knowledge, in some branch of medicine, biology, or sociology, important to the ununderstanding, prevention or treatment of alcoholism.

The project may have been inaugurated at any time in the past or during the year 1943, provided (a) that a substantial part of the work be carried on during the year 1943, (b) that it be developed to a point at which significant conclusions are possible before the end of the year, and (c) that a report on the work has not been previously announced and described before a scientific body or published.

It is desirable, but not necessary, that those planning to work for the award send to the Council before March 1, 1943, a statement of such intention. If the Council receives such information, it can be helpful in the prevention of undesirable duplication of effort. If a research project is conceived and inaugurated later in the year 1943, a statement of intention may be sent to the Council at a later date.

A report on the work and resulting conclusions must be submitted to the Research Council on Problems of Alcohol on or before February 15, 1944.

The award will be in cash, and will be given to an individual scientist whose work is judged sufficiently outstanding and significant to merit the award.

The Committee of Award will consist of five persons—an officer of the American Association for the Advancement of Science, and four representatives of the Scientific Committee of the Research Council on Problems of Alcohol.

The Council will send on request, to any scientist, an outline of basic policies governing its research program, lists of Council studies (completed, under way and contemplated), and information regarding the studies of other agencies. Scientists planning to do research in connection with the award may send a statement of intention to The Director, The Research Council on Problems of Alcohol, Pondfield Road West, Bronxville, New York.

Clinical Laboratory Procedures in Venereal Disease Diagnosis

A sixteen-page pamphlet, entitled *Office Procedures in the Laboratory Diagnosis of Venereal Diseases,* is being offered free to all physicians by the Bureau of Social Hygiene of the New York City Department of Health, 125 Worth Street. A request on a penny postcard will bring you a copy.

The booklet explains approved methods of clinical pathological laboratory procedures, all of which may be employed by the practitioner in his own office. These include preparations of gonococcal smears, method of staining, collection of culture material: also detailed data on examination for trichomonas vaginalis, syphilis, granuloma inguinale, lymphogranuloma inguinale and chancroid.

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Planned Parenthood Federation

The annual meeting of the Planned Parenthood Federation of America, formerly the Birth Control Federation, was held at the Waldorf-Astoria in New York, on Thursday and Friday, January 28th and 29th, under the presidency of Dr. Richard N. Pierson, of New York. Morning and afternoon sessions on Thursday were devoted to workshop conferences for state leagues, and the subjects discussed included national perspectives for planned parenthood; state reports on accomplishments and current problems; organization of community health education and services, and techniques of community organization and interpretation as applied to planned parenthood. An interesting feature of the program on Friday was a panel discussion on Planned Parenthood in Wartime, with Henry Pratt Fairchild, department of sociology, New York University, presiding. This subject was discussed from the following viewpoints: the church, by The Rev. Cornelius P. Trowbridge, Church of the Redeemer, Chestnut Hill, Mass.; social work, by Lucille Austin, district secretary, Community Service Society of New York; public health, by Dr. Marion Hotopp, acting director, Division of Maternal and Child Health, Delaware State Board of Health; Labor, by Elizabeth Christman, field representative, United States Department of Labor, and industrial hygiene, by Dr. Eva F. Dodge, obstetrical consultant, State Health Department, Alabama. The annual dinner was held on Thursday evening, January 28th, with Dr. Pierson presiding. The topic discussed was Family Health in America—problems of the war and post-war period. The speakers included Earnest Albert Hooton, department of anthropology, Harvard University, and Charles P. Taft, assistant director, Office of Defense Health and Welfare Services, United States Government. At a luncheon meeting held on Friday, Dr. J. H. J. Upham, of Columbia, Ohio, presided and the speakers were Robert D. Workman, D.D., chief of chaplains, U. S. N., and Louis Adamic, author.

Merger of Pharmaceutical Houses

A merger of two companies in the field of ethical pharmaceuticals has been announced by James Hill, Jr., president of Sterling Drug Inc., of which both are affiliates. Under the merger, Winthrop Chemical Company, Inc. has absorbed Alba Pharmaceutical Company, Inc.

"Although Alba ceases to exist," Mr. Hill said, "its research and manufacturing facilities in Rensselaer, N. Y. have been consolidated with those of Winthrop. Its marketing policies remain undisturbed. Dr. J. Mark Hiebert, medical director of Alba, becomes assistant to Dr. Theodore G. Klumpp, Winthrop president, devoting himself largely to that company's expanding program of medical research.

"During the past year, Winthrop has broadened its research program," Mr. Hill continued, "and the merger will permit of even further expansion in that direction. Winthrop is perhaps best known for its research in and production of Atabrine, a synthetic substitute for quinine in the treatment of malaria. It also produces many other drugs for the armed forces."

As a result of the merger, Fairchild Brothers and Foster, a wholly-owned subsidiary of Alba, has become a wholly-owned subsidiary of Winthrop.

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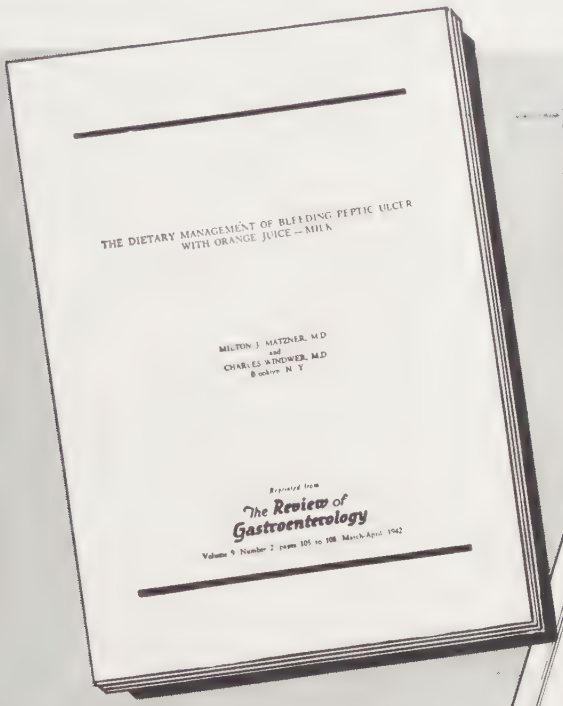
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and
CHARLES WINDWER, M.D.
Brooklyn, N. Y.
Reprinted from
The Review of Gastroenterology
Volume 9, Number 2, pages 105 to 108, March-April, 1942

For Physicians: The Knox Gelatine Company has published a reprint of results reported from a large hospital, dealing with the management of 35 consecutive peptic ulcer patients with massive hemorrhage. A diet of orange juice, milk, and gelatine was employed for two days, followed by feedings of the same formula between meals of blandest soft diet.

Conclusions showed that the acid combining power of the orange juice-milk mixture is increased by the addition of plain, unflavored gelatine.

For Distribution to Patients: The Knox Company has also prepared an understandable discussion of peptic ulcer diet, with suggested bland menus and a supplementary routine for drinking Knox Gelatine (a pure, wholesome protein) at regular intervals. Eighteen suitable bland-diet Knox recipes are given, too, each planned for special appetite appeal. (All menus and diets to be under a physician's supervision, of course.)

Every physician knows that, in many cases, the primary step in the treatment of peptic ulcer resolves itself into relief from pain. And since results reported in this new booklet for physicians indicate gelatine feedings have been satisfactory in the management of peptic ulcer patients, it will undoubtedly be of interest to the medical profession. The Knox Gelatine Company will gladly send it and the practical booklet for patients, in any quantity you need. There is no obligation. Simply fill in and mail the coupon below.

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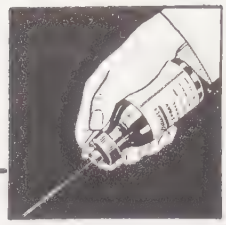

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(*Continued from page 93*)

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(*Continued on page 116*)

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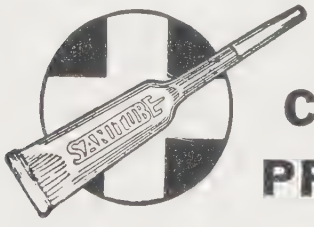

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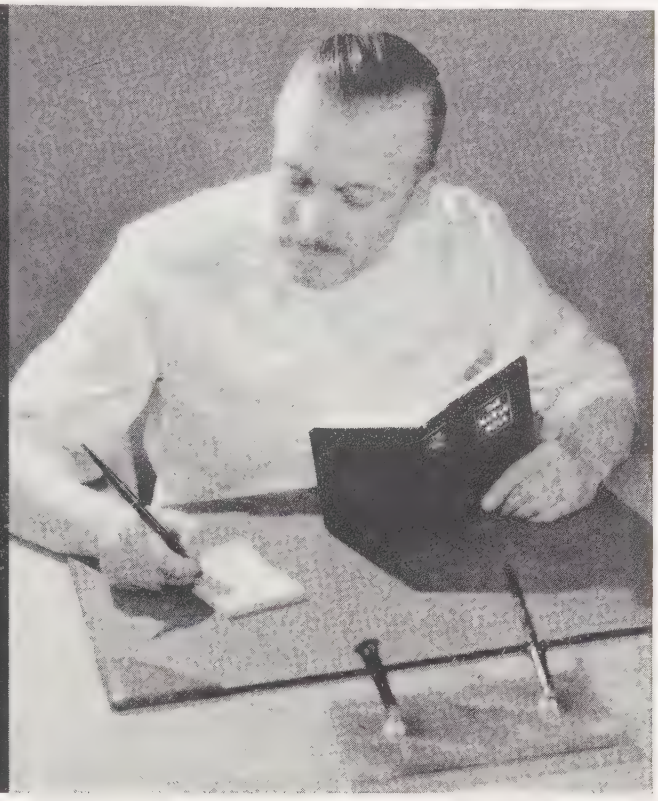

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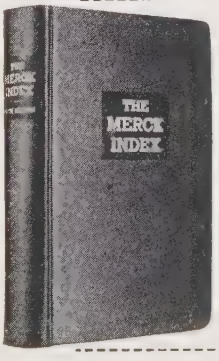

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Books of Travel by Medical Authors

Contributions to fiction by medical authors—from Rabelais onwards—have often been discussed and listed, says a writer in the *British Medical Journal,* September 26, 1942. He says that a somewhat neglected field of medical authorship—that of travel literature—is recalled and illustrated by a section of the latest catalogue of medical books issued by Messrs. Davis and Orioli, Wallingford, Berkshire. Quite a number of medical men, famous many years after for professional eminence, appear to have written interesting and in many cases valuable books of travel in their early days. Richard Bright, for instance, wrote an account of Vienna and Hungary, which was published in 1818. Sir John Bell's description of Italy, particularly Florence, was printed in 1825 (after his death); the first edition is represented in this catalogue. Thomas Hodgkin described his journeys in Morocco in 1863-64; Sir Henry Holland did the same in respect of Ionia, Albania, Thessaly, and Macedonia in 1812-13. Tobias Smollett wrote of France and Italy (1766), as did John Moore (1781), who described his acquaintance at Florence with Charles Edward Stuart (the Young Pretender). Martin Lister's account of Paris went through many editions (the first, 1699, is to be found in this list, as well as a later one), and was reprinted at lately as 1816. Alexander Russell, who described Aleppo, was lucky enough to include with his own writings two papers by John Hunter on the jerboa and the camel's stomach respectively; a copy of the second edition (1794) is now offered for sale. Commercially more valuable than these old travel books are some of the treasures of French Renaissance medicine now catalogued: such as Rabelais's translation of Galen, 1539, with a picture of a weird machine said to have been invented by Rabelais himself—it looks as if it may have been meant for the treatment of fracture of the patella, compound fracture of the femur, or dislocation of the hip-joint; Paulus of Aegineta (1540); Guy de Chauliac's *Surgery* (1500); and many others. Smellies's *Midwifery* (1754) is another treasure for a medical bibliophile.

Dr. Meeker Appointed Medical Director of National Drug

The National Drug Company, Philadelphia, Pa., has announced the appointment of Dr. D. Olan Meeker as Medical Director. Well known in the medical field for his original research, particularly in the field of biological chemistry, Dr. Meeker also is a familiar figure to ethical medical advertisers as the former head of the Research Department of Murray Breese Associates, New York medical advertising agency.

Dr. Meeker started his technical career as a graduate in chemical engineering, later studying medicine at the University of Rochester where he received his degree. Following three years of internship in medicine and surgery, Dr. Meeker established offices in New York where he has been engaged in general practice for the past ten years.

He is a diplomate of the National Board of Medical Examiners and a member of the American Medical Association, the Medical Society of the County of New York, and the Society of American Military Engineers.

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Vitamins and Minerals in the Prevention of Caries

Alvie R. Livermore, D.D.S., Smethport, Pa., presented in *Dental Survey* (Sept. 1942) a report of a two-year experiment on a group of eighty-four children, to determine the rôle of vitamin-mineral deficiency in dental diseases. The children, ranging in age from five to eighteen years, were divided into four groups as follows: 1, Those receiving an *uncontrolled* diet and no supplementary vitamin-mineral intake; 2, those receiving a *controlled* diet and no supplementary vitamin-mineral intake; 3, those receiving an *uncontrolled* diet *with* supplementary vitamin-mineral intake; and 4, those receiving a *controlled* diet *with* supplementary vitamin-mineral intake.

The general recommended dietary for the controlled groups, for each day, consisted of: One pound of vegetables, mostly green; one-half pound of fruit; thirty-two ounces of milk; one to two eggs; one-quarter to one-half head of lettuce; eight ounces of orange juice, besides other recommended fruit; meat once a day; and whole wheat bread and whole grain cereals. Desserts consisted of puddings made with milk and eggs, fruit, gelatin, dates and figs; pastries never over twice a week (pastries include pie, cake, doughnuts, candy and soft drinks made with artificial flavoring.)

The two groups having vitamin-mineral fortification (3 and 4) were given one vitamin and one mineral capsule daily. Vi-Syneral (Funk-Dubin) was used.

A summary of the author's records at the end of two years revealed:

Group 1 (uncontrolled diet and no vitamin-mineral supplement) consisted of twenty-four children. At the start of the experiment they averaged 4.7 cavities per patient and at completion the average was 5.1.

Group 2 (controlled diet and no vitamin-mineral supplement) consisted of sixteen children. This group had an average of 6.5 cavities per patient at the start and 2.1 at the completion.

Group 3 (uncontrolled diet with vitamin-mineral supplement) consisted of twenty children and this group had an average of 6.3 cavities per child at the start and 1.7 at completion.

Group 4 (controlled diet with vitamin-mineral supplement) consisted of twenty-four children with an average at the start of 6.4 cavities per patient and 1.0 at completion.

From these findings the author concludes that vitamin-mineral deficiency may be a cause of dental caries, gingivitis, stomatitis and pyorrhea. Also, although a corrected diet helps to arrest and prevent dental caries, it is clear that the best results are achieved from a balanced diet supplemented at all times by an adequate vitamin-mineral preparation.

Staff Changes at Bellevue Hospital

The following promotions and appointments have been made at Bellevue Hospital, according to the *Journal of the Medical Society of the County of New York:* Visiting physicians, tuberculosis, Oswald R. Jones and Currier McEwen; visiting surgeon, chest surgery, Adrian V. S. Lambert; visiting dermatologist-syphilologist, Evan W. Thomas; associate visiting physician, Philip Goldstein; honorary consulting gynecologist and obstetrician, Edwin Holladay.

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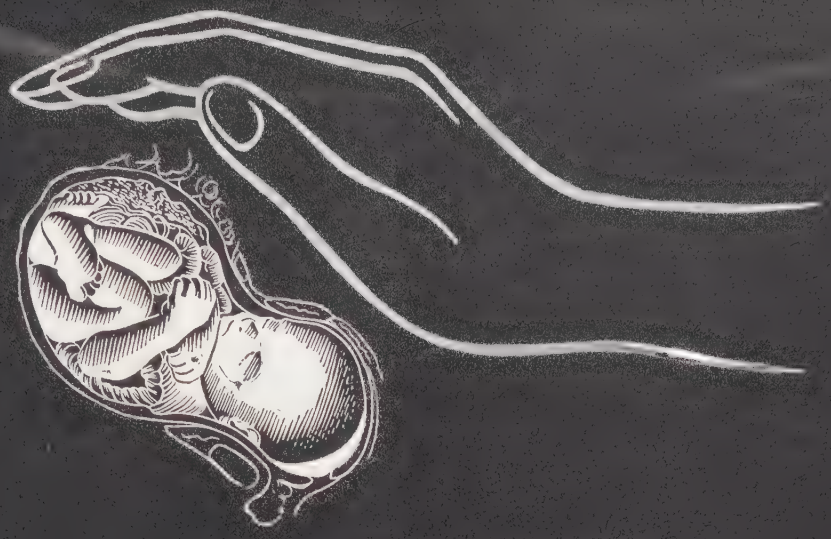

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Undescended Testes

L. J. Bailey of Detroit (*Jour. Michigan Med. Soc.* 40:107, 1941), says that the majority of undescended testes descend spontaneously during adolescent years. Army statistics indicate incidence of cryptorchidism in adults as two to three per thousand. Johnson (*J.A.M.A.* 113:25, 1939) found seventeen per thousand in 31,000 prepuberal boys. Therefore, fourteen to fifteen per thousand, or eighty to ninety percent of cryptorchids, are cured spontaneously largely between the ages of seven and seventeen. Associate endocrinopathies should be treated, as by thyroid, growth hormes, etc. Preferably between the ages of nine to fourteen it is recommended to use extract of pregnancy urine (A.P.L., antuitrin-S, follutein, etc.). The hormone from pregnant mare's serum (gonadogen) and testosterone propionate have also been used. The author has had no experience with either but points out that the literature is meager and unsatisfactory and that pituitary extract from the gland itself has no advantage over that from pregnancy urine. Dosages of pregnant urine in the literature vary from one hundred rat units twice weekly to one hundred to one thousand rat units daily. Total effective dose varies from 2400 to 7500 rat units over three to twenty-five weeks; average, eight weeks. The peak dose need not exceed 1500 rat units. Twenty to sixty percent successes have been reported. The author does not agree that pregnant urine is of value postoperatively in improving development of the structures, but on theoretical grounds, although he has had no experience, he recommends the use of pregnant mare's serum (ten units twice weekly over a prolonged period) for this purpose in maintenance and restoration of fertility (germinal epithelium effect), rather than the use of pregnant urine (stimulating interstitial cells with testosterone production increase). The object of treatment of cryptorchidism is not simply to obtain a cosmetic effect.

Endocrine Therapy in Skin Diseases

F. W. Lynch, of St. Paul, Minn. (*Minnesota Med.* 23:829, 1940), states that among the skin conditions considered to have an endocrine basis are the dry, coarse skin with brittle nails in hypothyroidism and myxedema, alopecia, the manifestations of Addison's disease with hyperpigmentation, acne, hirsutism, neurodermatoses, pruritus, keratoderma, kraurosis vulvae, leukoplakia, urticaria, herpes, seborrhea, ichthyosis, scleroderma, pityriasis, and vitiligo.

Hormonal therapy is of little avail in the treatment of specific dermatoses known to be related to the glands of internal secretion. Treatment by other means than hormones is usually more successful. In the few cases with demonstrable endocrine abnormalities, thyroid substance, ovarian extracts, estrogenic or possibly even androgenic agents are successful. The menstrual dermatoses sometimes respond well to endocrine therapy. Endocrine therapy is becoming increasingly more rational and it is not unreasonable to hope that increasing knowledge of the relations of the endocrine glands to dermatoses will lead to proper application of therapy. In the meantime the haphazard application of endocrine therapy is of little help to the patient and certainly no aid to the progress of dermatology.

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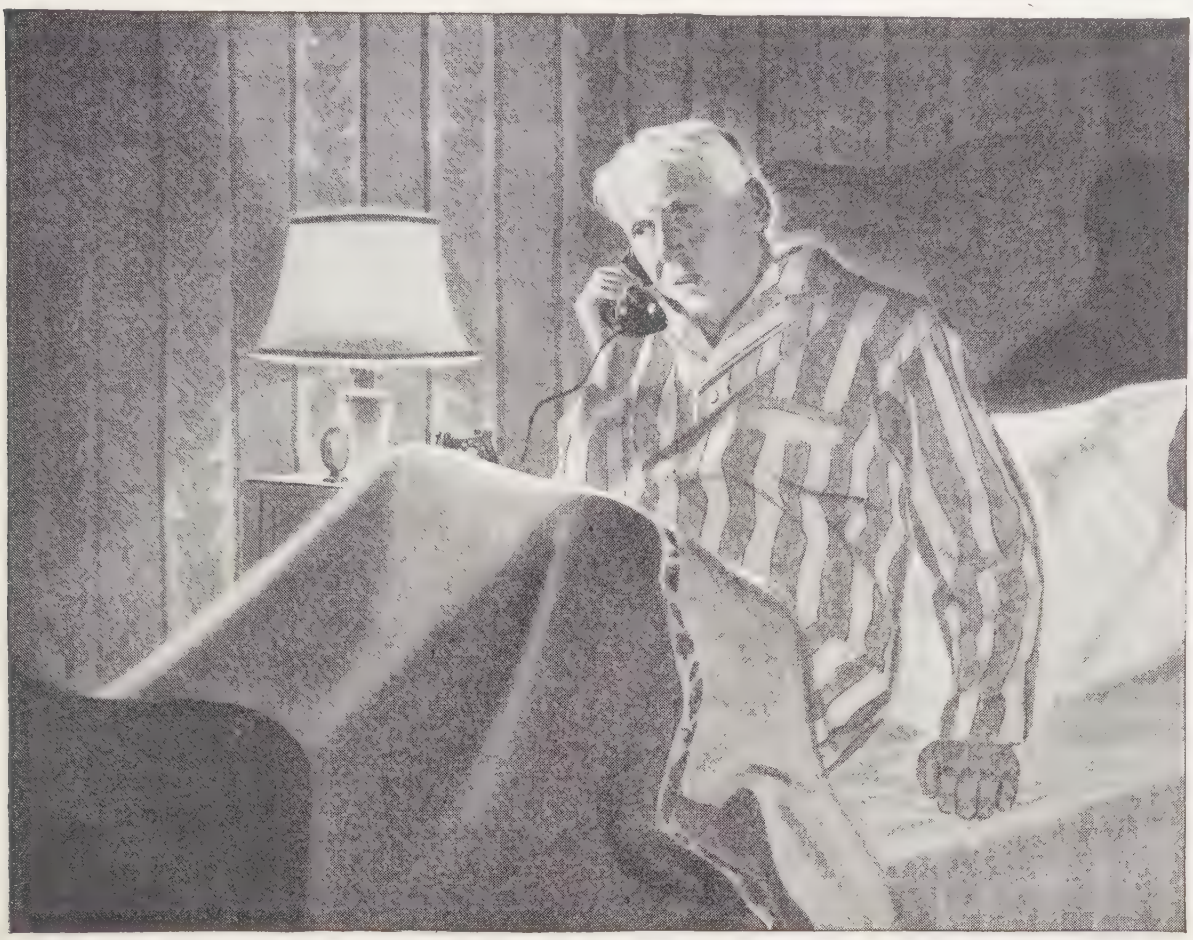

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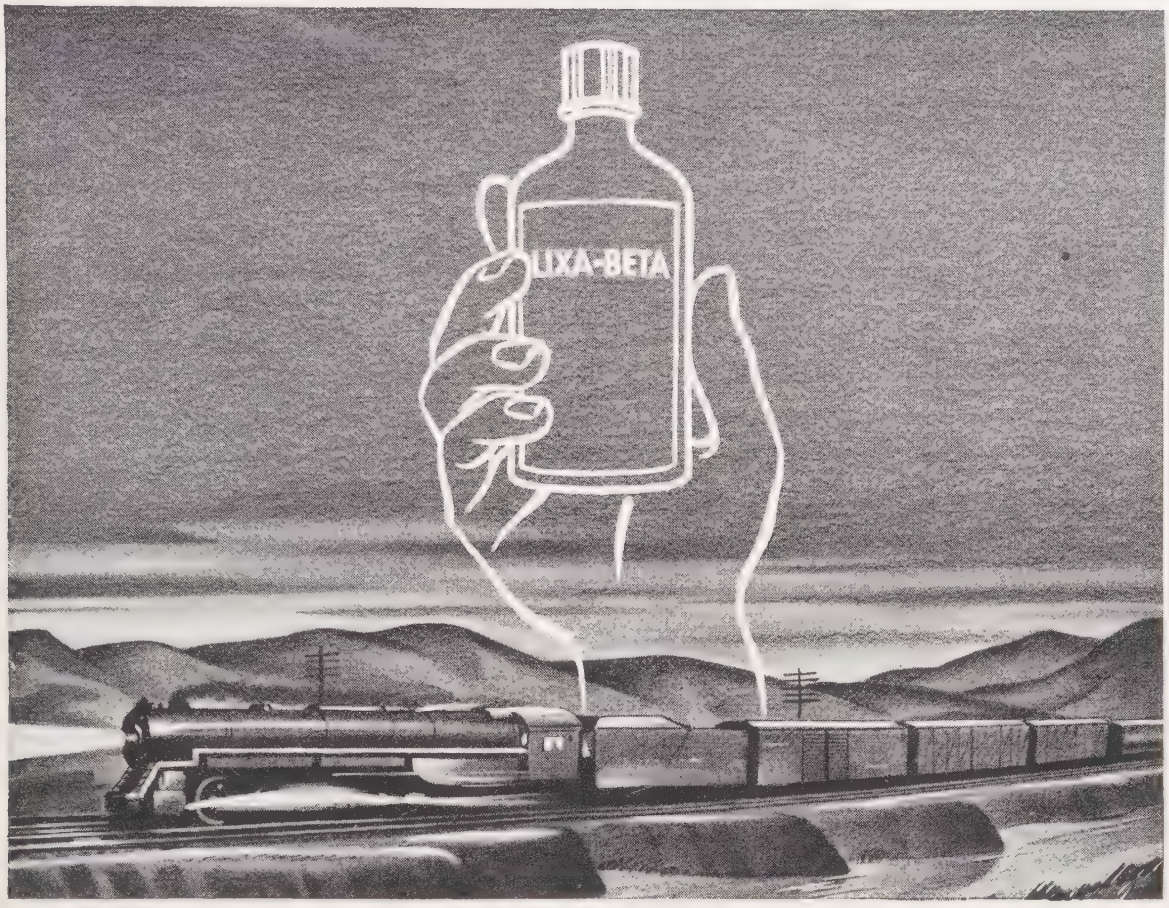

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Through monthly reports issued by the blood plasma section of the Medical Division, Regional Medical Officers keep all chiefs of Emergency Medical Service, hospitals and American Red Cross Disaster Relief Chairmen informed concerning the amount and distribution of plasma reserves available in their States, and how localities may secure additional supplies in emergencies.

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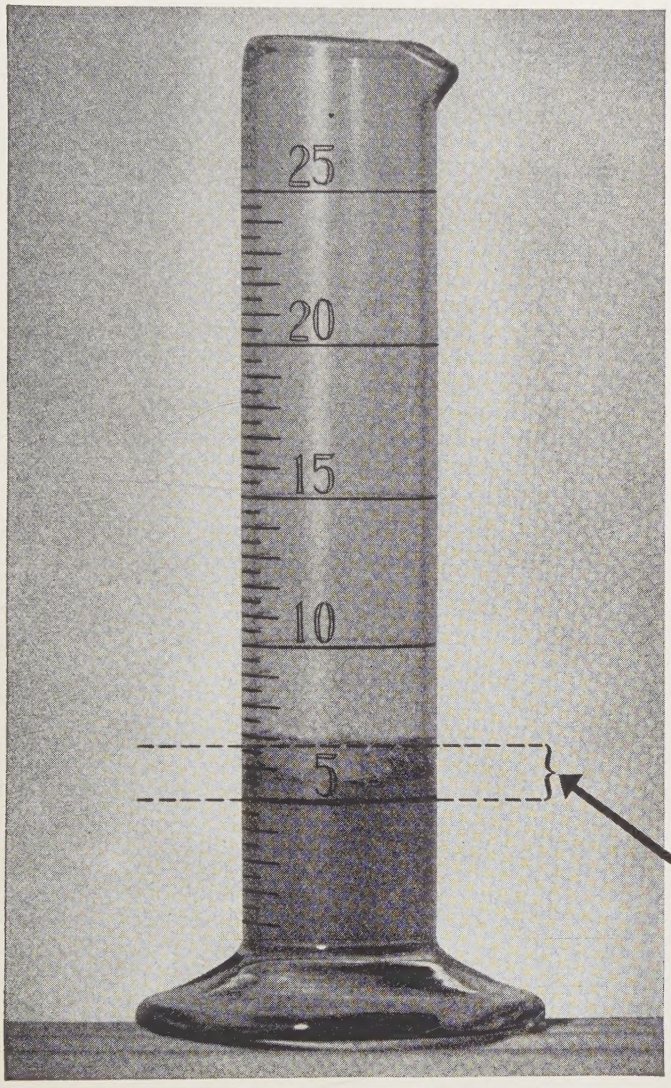

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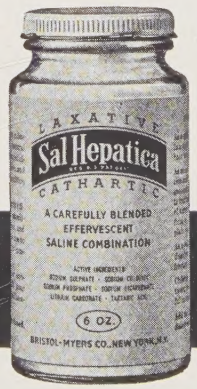

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Clinical Diagnosis of Chronic Sinusitis

Edward S. Brown and Valentina P. Wasslon (*Archives of Pediatrics,* November 1942) state that the prevalence of chronic sinusitis is obscured by a wide divergence of opinion on the diagnostic significance of various signs. The x ray, which is relied upon by many, they believe to be unreliable as a final diagnostic arbiter, because neither negative nor positive results are conclusive and the personal equation may unduly influence interpretation of the films. They are of the opinion that greater reliance should be placed on clinical evidence, and discuss in detail twenty-two clinical signs which, in their experience, point to the existence of suppurative sinusitis. Among the most useful and common of these signs are:

Presumptive signs: Sinus tenderness on palpation and percussion; postnasal mucopurulent discharge in the absence of a known cold; constant sniffing and hacking; shifting nasal obstruction; cervical, submaxillary and retropharyngeal adenitis in the absence of another discernible cause.

Probable signs: Constant circles under the eyes; puffiness beside the nose; nasal twang; bouts of hoarseness or huskiness; atrophic pharyngitis; frequent blinking; nose twitching; mucopus in nares in absence of known cold, and mouth breathing in absence of adenoids and colds.

To establish a diagnosis of sinusitis, the patient should exhibit a minimum of three presumptive and three probable signs on repeated visits.

Deterioration in Epilepsy

Harold D. Palmer and Joseph Hughes, of Philadelphia (*Pennsylvania Medical Journal,* August 1942) say that the intellectual and character deterioration, said to be one of the inescapable sequels in epilepsy, may be proved a myth, or at least may be shown to be due not so much to the disease itself as to the accidental trauma, or the effects of drugs prescribed for the relief of seizures. In a large series of cases Lennox and his co-workers found only seven percent definitely deteriorated. One of the evidences that deterioration may not actually occur is the fact that patients who experience complete relief from seizures by dietary and drug therapy find their intellectual and emotional functions restored. It would seem, therefore, that if personality changes and alterations in behavior making up the picture of socalled "deterioration" do occur, they may be partially due to the psychological hazards inherent in the constant state of insecurity caused by the fear of attacks.

The long continued use of sedative and hypnotic substances may be one of the factors which have produced mental dullness and sluggishness, mistakenly called deterioration. The use of the newer drugs, especially dilantin, which have no dulling or hypnotic effect, will enable us ultimately to answer this question which has so often been raised in the minds of physicians as to whether their therapeutic method led to the socalled deterioration or whether the disease itself produced it.

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1. Fabricant, M. D.: "Nasal Medication," Williams and Wilkins Company, October, 1942.

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